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THE RUSSIAN CAMPAIGN IN KHOKAND.*

AFTER more than ten years of continuous progress, conquest, and annexation, the Russians have at length met with an enemy worthy to be called so as regards his staunchness and perseverance, but not if we only consider the means of defence or attack, which are at his disposal in resisting an invasion. This remark is suggested by the recent operations of the Russians against the Kipchaks and Kara-Kirghiz who inhabit the eastern portion of Khokand; and who have played, from time immemorial, a prominent part in the history, not only of old Ferghana, but also of Eastern Turkistan, nay of India, since the nucleus of the army with which the talented Baber founded an empire in Hindostan, consisted, to a large extent if not exclusively, of Kipchaks, who followed their adventurous leader from the lovely valley of Andijan to the wealthy country of the five rivers (Punjab). But who are the Kipchaks? This people, respecting the origin of which the oldest historical monuments of the Turks bring us but scanty information,† forms part of a family which is scattered all over Central Asia. The portion which is most pure in origin, and least influenced by foreign contact, has remained on the southern slopes of the Alai, and on the upper course of the Naryn, from the time of their immigration. If, nevertheless, we also meet Kipchaks amongst the Karaks and Uzbegs, they must be looked upon as men belonging to that family, who have retained their old name even after having mixed with other tribes of the Turkish nation. It may be that the natural strength of the present home of the Kipchaks in a mountainous and not easily accessible district, or that their long and bloody feuds with the Kalmuks and Mongols of Old Dzungaria, or their comparatively modern struggles with the Chinese, have made them so stalwart and pre-eminently warlike, but it is a fact that their fame as dauntless warriors can be traced back for four or five hundred years. In the Shaibani-namah, an epic narrative of the exploits of Muhammad Shaibani Khan,‡ we find a classification of the various Turkish tribes coming from Ferghana to be enrolled under the banner of the new conqueror, and here the Kipchaks are designated as the bravest of the brave. After the overthrow of the Timurides, and the consolidation of Uzbeg power in the three khanates, little or nothing is heard about them in the country between the Oxus and the Jaxartes; but much greater is the share they took in the events of Eastern Turkistan, where almost every political revolution is connected with Turks coming from Khokand. These were undoubtedly Kipchaks or Kara-Kirghiz.

As to the recent appearance of the Kipchaks in history, it is generally known that, although they took part in the struggles of the late twenty-five years against the Russians, slowly moving down from two points, namely from the district of Semirye-chensk on the north-eastern, and from the embouchures of the Jaxartes on the north-western frontiers of Khokand, the part they played was not a prominent one, and the energy which they displayed was not at all in proportion to the former reputation of their arms. It was only for a short period, namely, when the much-hated Khudayar Khan was expelled from his country, that they appear defenders against the overwhelming power of the northern invader.

Alem-Kul, himself a Kipchak, fell at the head of his army, under Tashkend, but as soon as Khudayar Khan was reinstated in his power, and made sure of the protection of his former enemies, the Kipchaks and Kara-Kirghiz at once retired, fostering in their bosoms a two-fold hatred and animosity against Khudayar as the murderer of Mussulman-Kul, their national hero, and of other chiefs of their tribe, as well as against the infidel foe, threatening their independence. For ten years they preserved an attitude of expectation in their homes, looking out for an opportunity for revenge. Their country lies between the Kara-darya and the Naryn, and here, in comparative security, they anxiously waited for the moment when Khudayar, abandoned by his Russian protectors, should be on an equality with them. Illusory as this hope may seem, we must not forget that much was done to arouse it by Nasiru-'d-Din Tör, the eldest son and the presumptive heir to the late ruler of Khokand, who was their governor, and who, being on a very bad footing with his father, always lent a ready ear to plots and revolutions which would accelerate his accession to the throne, even if it were on the ruin of his father's power. Nasiru-'d-Din, who, during a short sojourn in Tashkend, made surprising progress in the Russo-European civilisation, namely, in familiarising himself with champagne and cards, and in fraternising with Russian officers, must

* For Fedchenko's map of Khokand, see *Ocean Highways* for August 1873, p. 198. The previous political events in Khokand are given in our number for November 1873, p. 352.

† The name is coupled with the birth of one of the ancestors of the Turkish nation under a hollow tree (Kapchak), hence the denomination of the whole tribe.

‡ See my *History of Bokhara*, p. 244.

have assured the Kipchaks that the grey-haired representative of the White Czar would be quite indifferent as to the personality of the ruling Prince, provided that he did not neglect his obligations towards Russia. And indeed the ambitious and unnatural son had a very easy game to play in overthrowing the throne of his father. Khudayar Khan, all his life long a cruel and an avaricious tyrant, had become, under the protection of his Russian friends, quite unbearable. The different ways in which he tried to extort money from his subjects is almost incredible. Thus we are told that he kept a kind of monopoly on leeches, and everyone who wanted a bleeding was compelled to pay heavy prices for the official bloodsuckers. He had further made the arrangement that bears should be led around the town by his soldiers for public amusement, and whether inclined or not to find diversion in the dancing of the shaggy inhabitant of the woods, the people had to pay liberally to the royal merrymaker. Of course such paternal care could not be endured for a long time, and we cannot find fault with the Khokandians if they tried to get rid of a prince whom they had already driven away four times, and who had been always forced upon them by foreign interference.

Passing over the unsuccessful rising of the Kipchaks two years ago, which was frustrated by Russian intervention, we come to the first rumours of the present contest, which reached us towards the end of the past summer. It is surprising that General Kaufmann should not have hesitated to send a diplomatico-scientific mission on the 11th July, namely, at the very outbreak of the rebellion, to the court of a prince who was just about to pack up his luggage, and to leave his country altogether. General Skobelef, who was entrusted with this mission, is an able officer, already famous for his adventurous reconnoitring trip from the Caspian to the Lake Sary Kamysh, on the eve of the Khiva campaign. He found the Khan in a very unenviable position, threatened on all sides by open and secret enemies, in the ranks of which were not only his foremost officers, but even his own children, nay, the heir-apparent to the throne, his eldest son Nasiru-'d-Din.

On the arrival of his Russian guests, Khudayar Khan took great care to conceal his dangerous position, but being pressed upon too hardly by the rebels, who advanced from the east and the south, headed by his former generals, and by his sons, he finally laid open his wounds to the Russians, asked their assistance in the utmost distress, and leaving his residence on the 22nd July (old style), he took a western direction. Whilst still only a few miles from his capital Khudayar apparently hesitated as to what steps he should take. He still had a few thousand men at his disposal, and he even showed himself inclined to sacrifice his Russian companions. But when the last remnants of his military power suddenly went over to the enemy, he could not do otherwise than throw himself under the shelter of General Skobelef, who, accompanied by twenty Cossacks and a few Russian traders, succeeded in bringing the party safely to Kojend. It was certainly a narrow escape; but on the other hand, the fact that thousands of rebels were constantly on the heels of the escaping party must convince us that they intended to show forbearance. The Khokandians were satisfied at seeing themselves liberated from their hated ruler, and nothing could result from barring his flight. Khudayar Khan having reached the Russian territory, expressed his thanks in a pathetic letter to his liberator, and handed over his royal person, as well as his kingdom, to the mercy of the White Padishah, keeping for himself the twenty or thirty camels laden with treasure, which may furnish him the means of living as a *prince exilé* on the banks of the Neva.

After this event the rising in Khokand at once became general. The real soul of the movement was, from the very beginning, a son of the late Mussulman-Kul, named Abdu-'r-Rahmân, with the official title of *Aftabeji* (holder of the washing-can), a man of energy and military experience, and in full possession of the confidence of his people, namely the Kipchaks. Next to him stood *Pulad Beg* (the steel prince), of Kara-Kirghiz extraction, more impulsive than the former, but with less sagacity. He had great influence over Karatigin, and succeeded in raising a rebellion in Macha (Kuhistan), the mountainous district east of Samarkand. There were others besides, such as Isa Aulia (Yessaul?) Muhammad Amir, Batir Tör, Isfandiar Khalik-Kul, Kazi-bek, Nar Muhammad, and a few influential Khojas; but they did not remain permanently in the foreground, and it is only the two first-named personages that must be looked upon as the regular leaders of the movement. At the very outset of the rebellion neither Aftabeji nor Pulad betrayed any ambition for the supreme power. They had nominated Nasiru-'d-Din as the future khan, but as soon as they saw that want of courage would lead him to relinquish their cause, they gave him up at once, and themselves took the lead of that struggle, which is the most important effort that the Central Asiatics have hitherto made to resist their invaders. The plan of the insurgents, no doubt, was to drive out, not only Khudayar, but his Russian friends also, and not only from Khokand, but even from Tashkend—nay, from the whole of Central Asia. The train of the plot, so cautiously laid, shows sufficient skill. The rising was to have taken place simultaneously in Khokand, in the adjoining Russian territory of Samarkand and Khojend, in Bokhara, and in the Steppes, but the gallant Kipchaks evidently forgot to consider that where the booming of Russian guns, and the deadly whistle of the rockets have once been heard, the cry for *Gaza* (holy war) will remain unanswered. And thus it happened, that whilst the eastern portion of old Ferghana and of the Kuhistan, such as Macha, Abburdan, and other less accessible places, joined heartily in the fight against the invading unbeliever, the people in the immediate neighbourhood of Russian authority did not even venture to stir, and, in spite of promises, contributed but very little in money and presents towards the so-called "holy cause." Judging from sundry reports given in Russian papers of authority, we are led to believe that Amir Yakub, Khan of Kashgar, has also given secret support and encouragement to the rising in Khokand. Taken altogether, we must confess that the plan, as formed by the simple and warlike Kipchak chiefs, has, in spite of its utter failure, surprised us. We see before us evident proofs of indomitable courage, of extraordinary perseverance, and of unbounded love of liberty, and of the mother-country, virtues rarely met with in Asiatics, but splendidly displayed by the Kipchaks and Kara-Kirghiz during the bloody events, of which I shall give a succinct account.

The first columns of the Khokandians that attacked the Russian territory were those which took part in the intended assault on Khojend on the 8th of August. They formed a large mass of irregular soldiers, who, in spite of their zeal, from the very beginning proved their inability to cope with a well-drilled, well-armed, and a well-commanded enemy. They attacked Khojend from three different sides, namely, from the Khokand route on the east, from the village of Samgar (district of Kuruma) on the north, and from the Nau-gate on the south. Baron Nolde, the Russian commander of that place, had only to send against them a few companies of infantry and a few guns, when they suddenly withdrew on all sides, not as the Bokhara or Khiva armies did, who, moved by a panic fright, could never be brought a second time under fire, but to re-appear again at other points, and to re-attack the same enemy, to whose skill and murderous weapons their sadly crippled ranks bore sufficient testimony. On the 10th of August renewed fights took place before the Nau-gate, on the 11th on the right bank of the Jaxartes, and on the 12th near the village of Kostakaz, on the Khokand route, at which places, according to Russian information, the rebels were beaten, and repulsed with heavy losses. In default of other sources of information, we must credit the Russian official and semi-official reports; but, on the other hand, we cannot but express our astonishment that the severely-injured, and so frequently-beaten Khokandians could have gathered sufficient strength to show such a decided front at Mahram on the 22nd, which place the Russians had to take by assault, and then, after having wrested it out of the hands of its half-armed defenders, they had to continue an unceasing fight at every step in their invasion of the khanate. I must confess I cannot share in the admiration General Kaufmann is so anxious to arouse by his loudly announced "victory at Mahram," where, according to Russian reports, 50,000 Khokandians were put to flight by a brilliant *fait d'armes*, executed from Karakchikum towards that fortress. We fully admit that Mahram, situated at the embouchures of the Upper Jaxartes valley, is of essential strategical value, and was recognized as such even by the uncivilized leaders of former wars, but I much doubt the number attributed to the Khokand army, for Aftabeji himself was unaware of the numerical strength of his forces, nor could it have been in his plan to lean on Mahram altogether, which he must have found too far from the real centre of his strength, and which is in the neighbourhood of those towns, whose Tajik population was, from the beginning, hostile to his cause.

The "battle of Mahram," which may be properly styled the last scene of the first act in the bloody drama, produced so complete a change in the state of affairs that Aftabeji withdrew from the western part of Khokand, which he handed over to his enemies, and retired to the eastern and south-eastern districts to re-organize his strength. General Kaufmann, imagining that he was already in undisturbed possession of the country, sat down to dispose of the easily-won prize, and after annexing that portion of the khanate which extends from the station of Abikhurek ("drinkable water") to the embouchures of the Naryn, and which was always a harassing wedge between Khojend and the Goverment of Semirye-chensk, he magnanimously installed on his father's throne Nasiru'd-Din Khan, leaving it of course to the new Russian vassal himself to carry into effect this imperial favour, and to reconquer the capital from the hands of the Kipchaks, which, as we shall see, he never achieved. As for the newly-annexed Russian territory, known formerly under the name of the country of Namangan (the original meaning of the word is Nemek-kan, being a salt mine) and divided into six districts, we think it quite natural that the inhabitants of the towns, mostly industrious and peaceful Tajiks, should have submitted to the conqueror, and tried even to appease the anger of the victorious unbeliever with 40,000 loaves of bread; but I beg leave to doubt the great anxiety and joy they are said to have manifested to come under Russian rule; for such a statement runs too strongly against the occurrences of a few weeks later, when horrible bloodshed proved their desire of getting rid of the foreign yoke. General Kaufmann, who is notorious for his love of theatrical effect, took particular care to celebrate the act of incorporation in a solemn manner, and after dividing the country into two military districts, namely Namangan and Just, he returned to Tashkend, leaving the newly-acquired territory under the care of General Skobelef and a strong military garrison.

But the usual facility with which the Russian soldiers had hitherto earned their laurels on Central Asian battle-fields was not destined this time to attend on these greedy competitors for decorations and rank. The sending of a sword of honour, inlaid with diamonds, and bearing the inscription "Za Khrabrost" (for valour), which was forwarded from St. Petersburg to General Kaufmann was certainly a little too premature, for the real struggle, the real conquest of Khokand, was only about to begin. Aftabeji, in retiring from Mahram, went by rapid marches to Margilan; but, owing to the duplicity and want of reliability of the Tajik inhabitants, he did not remain there, but continued his way to Asake, pursued by a flying Russian column, under the personal command of Skobelef. During the nights of 9-10th September the pursuing and pursued came to a fight near the place called Mingtepe (thousand hills), and it is certainly a gross exaggeration when the Russians say that out of 10,000 followers of the Tatar chief only 400 remained with him, whilst the rest, greatly alarmed by the unfortunate issue of the battle, left their leader. Such a statement ought not to be taken literally. When Aftabeji retired it was his intention to reach the less accessible passes of Kara-Kulja, in the vicinity of Uzkend, which is the seat of his tribe (the Kugai), in order to gather strength, and to break forth at the proper time. Under these circumstances the following of all his adherents would have become *de facto* an impossibility, and it was not in consequence of secession, but of an order, that every man looked for his own safety, and for temporary repose. When Skobelef, therefore, tired of the fruitless pursuit, returned from Ush to the headquarters at Margilan, Aftabeji not only did not disappear in the disguise of a dervish, towards Mecca, as bazar gossips reported, but made all possible efforts to encourage his partisans for the last stroke, and to enter the arena for the second time.

The Russians were fully employed settling the newly annexed Namangan, in erecting forts, and in making themselves at home, when rumours spread of

the breaking out of the flame which was believed to be extinguished. These reports, augmented from day to day, and made it unavoidably necessary again to take the field, and to march against the united forces of Aftabeji and Pulad, towards Andijan, where they were said to be at the head of more than 80,000 men. Admitting that the alleged number must be again reduced, it is nevertheless certain that General Trotzki, who commanded the expedition, had hard work before him. The storming of Andijan, on the last day of September, and the subsequent fights of the 1st and 2nd October remind us vividly of the strenuous and life-despairing struggle of the zealous disciples of Sheik Shamil in Daghestan, and of the adherents of Abdel Kadir in Algeria. The Russian soldiers, in storming the place, had to take barricades and intrenchments, to fight for every step they made in advance, and when they reached the centre of the town, famous as the birthplace of Baber, they could not keep their position longer than one hour, and found themselves obliged to retrace their steps, in the face of the same difficulties, the same fighting, and the same bloodshed. Assuredly such a resistance is no trifle, considering the military skill, and the superior arms of the Russians, as compared with the empty hands of the Tatar defenders. And still this unequal contest continued, with slight interruptions, for nearly four months! On the 3rd, 4th, and 5th of October continued fights took place between the retiring Russians and the pursuing Kipchaks on the route to Balikchi, whilst the 9th, 12th, and 13th of the same month are noted for risings in various places in the district of Namangan, the same country which, according to the Russians, only a few weeks ago, implored the Yarim-padishah (half-emperor, as General Kaufmann is commonly called), to bestow upon them the blessing of Muscovite rule. The villages of Naukend, Yenghi-kurgan, and Kasan were soon subdued by a military detachment under Colonel Fride, whilst Colonel Meller Zakamelski cleared the places called Karaskan and Kizil Rabat. But this did not break the heart of Batir-Tör, the leader of this rising, for we meet with him again on the 22nd, in the fortress of Tere Kurgan, which the Russians had to take by storm, with the same want of result as in the case of Andijan. The circumstance of having been twice repulsed from a position won by great sacrifices of course greatly injured Russian military influence, and it must be chiefly attributed to this loss of prestige that the Kipchaks, in company with the Kara-Kirghiz, far from feeling discouraged by the tremendous loss of life, instead of slackening their spirit of defence, grew the more desperate, and being beaten or driven away from one place, soon emerged with renewed strength, and with redoubled fury, at another. The cannonade of Tere-kurgan had not yet echoed away in the rocky valleys of the Alai, when in Namangan, where hundreds of hands helped to erect a fortress, or to put the old one in a position of defence, a rebellion broke out, and in the morning of the 24th thousands of Kipchaks, supported by the Namanganis, rushed towards the citadel occupied by the Russians. The assault was tried on three sides at once. The esplanade separating the citadel from the tower was crammed with the enraged assailants; but, in spite of the deadly fire with which Colonel-Lieutenant Garnowsky, the commander of the place, received the storming masses, and notwithstanding the circumstance that the said esplanade was literally covered with Tatar corpses, the fight continued all day in the streets of Namangan, where barricades, entrenchments—nay, each house—had to be taken separately by the Russians. It was only on the 27th of October, after a bombardment of five hours' duration had shattered the whole town (said to contain 10,000 houses), and laid the bazar in ashes, that the Kipchaks retired. They needed rest, but their heroic spirit was not yet broken. Without dwelling on the various skirmishes that Colonel Pichughin, who was entrusted with the duty of keeping open the road between Namangan and Khojend, constantly had with marauding Khokandian parties, we must refer to the embittered fight at Balikchi, situated at the confluence of the Naryn and Kara-darya rivers, and therefore a place of strategical importance. The date of this serious affair is the 12th of November, and in reading the inimical, that is, the Russian report of that day, we cannot but admire Weli Khan Tör, the Kipchak leader, in that engagement, for his stubborn defence, and for the extraordinary courage which he, as well as his ill-armed soldiers displayed. The details of that fight, in which the Russians had to storm the place, are more frightful, more appalling than those of Andijan. Tere-kurgan and Namangan, and the fact that the Tatar commander and all the leading officers, were found amongst the dead, is certainly the best testimony of their soldier-like behaviour. According to the semi-official report of the Russian paper, the Kipchaks were 20,000 in number, and their loss in lives amounted to 2000.

I should weary my readers were I to continue to relate the details of this most remarkable struggle between a *handful* of half-nomadic people and a foreign invader equipped with arms of the best modern construction. Suffice it to say that the 30th November and subsequent days again saw a bloody event, more like an onslaught than a battle, at Gurtepé, a central point on the road to Balikchi, Margilan and Khokand, and that the Kipchaks again lost 2000 lives. Things went on in this way, with slight interruption, during the month of December, and it was only in January of 1876 that a continuous battle, *lasting more than a fortnight*, on the left bank of the Jaxartes, between Andijan and Khokand, ended with what the Russians call the "*Victory of Asake.*" The want of means of defence, but not a relaxing, yielding spirit, forced the Kipchaks to succumb. Aftabeji, together with Batir Tör, Isfendiar, Khalik-Kul, Kazi Bek, Nar Muhummad, and others, tendered their arms to General Skobelef at Hindi-Kishlak (a place about four miles from Andijan), submitting themselves and their country to the foreign conqueror. Russia secured in this way, at least for the moment, the undisputed mastership of the whole khanate. She found herself necessitated, by the ambition of her military officers, to take a step which is certainly not for her best interests, which was not on the line of her previously-settled policy, and which is almost sure to be detrimental to her. The annexation of the whole Khanate of Khokand is a measure with which Russia has quite recently surprised the world. Khokand, almost the poorest of the three khanates as regards population and cultivable soil, will prove a very heavy

burden on the Russian exchequer, since the cost of governing a hardy, warlike people like the Kipchaks and Kara-Kirghiz, cannot be even compared with the expenses hitherto incurred in the administration of those towns and villages, which are inhabited partly by Tajiks and Sarts, and partly by Uzbegs. In spite of the present submission, there can be no doubt that the rocky passes of the Upper Naryn and of the Alai will become a second Caucasus for Russia, with the difference that the Sheikh Shamil of the future will be able to lean on a larger force of his co-religionists, and on a neighbouring Muhammadan power with the same interests. The Russians will now learn that they, too, have vulnerable points, not only in Europe, but also in Asia, and that the time for self-control and moderation has finally come.

A. Vambery.

PERU.

The appearance of the statistical publication entitled *Demarcacion Politica*,* and of the preliminary volume of the great work by Don Antonio Raimondi,† will be an epoch in the history of Peruvian geographical research.

We heartily welcome these publications, the results of the enlightened administration of Don Manuel Pardo; but before noticing their contents, we are glad to take this opportunity of explaining the financial position of Peru, and of giving some statistics bearing upon the present resources and future prospects of the land of the Yncas.

The presidency of Colonel Balta, from 1868 to 1872, was a period of extraordinary activity in the construction of costly public works, and the Peruvian railways, some portions of which are the most stupendous monuments of engineering skill in the world,‡ were vigorously pushed on towards completion. But this activity entailed serious financial difficulties, the consequences of which were left, by the Balta adminstration, to its successor. In 1868 the service of the foreign debt required an annual payment of 1,000,000*l.* a year; and loans were contracted, in 1870 and 1872, which raised this sum to 2,600,000*l.*§ In August 1869, a contract was made with Messrs. Dreyfus & Co., a wealthy French house, in order to pay off a debt to it of 3,900,000*l.*, by the sale of 2,000,000 tons of guano, delivery of which was to commence in 1872.

Don Manuel Pardo was elected President, and entered upon his office on August 2nd, 1872. The immediate financial prospect was and is very gloomy, although his wise and statesmanlike measures have conduced to a future equilibrium, and to a complete restoration of the credit of his country. Meanwhile the heavy balance due to Messrs. Dreyfus could not immediately be covered, because the whole of the proceeds of guano since 1873 were absorbed in meeting the liabilities created by the 1870 and 1872 loans. Messrs. Dreyfus are entitled to repay themselves the balance due from the Peruvian Government by the sale of the exported guano, and this operation will absorb the proceeds of the sales up to November 1876. Hence an interval must occur up to that date in the service of the foreign debt by means of the sales of guano.

The Pardo administration is not responsible for this disastrous consequence of the imprudent zeal of Colonel Balta, in pushing forward the railways and other great public works with borrowed money. It has, however, done all that was possible to avert immediate financial disaster, and to secure the future prosperity of the country. President Pardo has reduced the internal expenditure to 18,000,000 *soles*,* and, with the co-operation of the Peruvian Congress, he has increased the taxation 80 per cent. in three years. This is a proof of the honourable desire of Peru to maintain herself, in order to meet the demands of her creditors. Owing to a law increasing the duties in 1873, the customs now yield 7,000,000 *soles*, the tax on nitrate of soda, enacted in 1875, brings in 3,000,000 *soles*, and other taxes yield 3,000,000; making a total from these sources of 13,000,000 *soles*. But to meet the immediate difficulty of paying the dividends on the foreign loans the only plan was to endeavour to discount future sales of guano. Commissioners were sent to Europe to negotiate with this object, but they celebrated a contract in France, with the Société Générale, of such a character that the Peruvian Government considered it to be inadmissible, and was obliged to annul it. By this contract the production of guano would have been compromised during five years, while only three six-monthly payments of the interest of the debt would have been arranged for. The Commissioners, in this matter, acted in opposition to the instructions of the Government, from zeal to meet the immediate difficulty at all hazards. But the Peruvian Government could not consent to compromise for five years the principal rental of the nation, without providing for the foreign debt beyond the end of 1876.

The action of Don Manuel Pardo, in refusing to sanction this ruinous contract, is deserving of all praise. It was patriotic and disinterested. His term of office expires in August 1876, so that, if his Excellency had only considered his personal tranquility, he would have accepted the contract, which at least furnished him with the means to meet all external obligations until the conclusion of his term of office. But he has preferred to risk all kinds of responsibility and obloquy rather than, for the sake of a temporary relief, compromise still further the financial position of the country, and that of its foreign creditors. The immediate consequence has been the suspension of the payment of the coupon due on January 1st, 1876, and the unreasoning abuse of newspapers in England and France, which has, of course, done much temporary injury to Peruvian credit.

The Peruvian Government, through its Minister in London, has now intimated its desire to enter into

* *Demarcacion Politica del Peru.* Edicion oficial de la direccion estadistica. Lima, 1874.

† *El Peru: por Antonio Raimondi.* Parte Preliminar. Lima, 1874 (large 8vo, pp. 422).

‡ See *Geographical Magazine* for April 1874, p. 37, and June 1874, p. 89.

§ The Peruvian foreign loans are those of 1860-64, at 4½ per cent., amounting to 1,300,000*l.*; the consolidated loan of 1865 at 5 per cent., amounting to 10,000,000*l.*; the railway 6 per cent. loan of 1870 of 11,920,000*l.*; and the 5 per cent. loan of 1872 amounting to 15,000,000*l.* Total, 38,220,000*l.* They are repayable in twenty years, through the operation of sinking funds. There is also an internal debt of 2,500,000*l.*

* A *sol* is 3*s.* 8*d.*

an arrangement with the holders of bonds so as to remove all obstacles in the regular payment of obligations connected with the foreign debt. It will also at once adopt temporary measures for the export of sufficient guano to cover the interest on the foreign debt, which was not paid on January 1st, 1876, and of subsequent coupons which may become due before definite arrangements have been made with the bondholders, for the future distribution and application of the proceeds of the guano.

The maturing of these arrangements will require time, but the vast resources of Peru and her inexhaustible mineral wealth, are an abundant guarantee for the future. In our number for December 1874 (p. 370), we gave a detailed account of the guano deposits in the south, which amount to 7,400,000 tons, worth upwards of 55,500,000*l.* This alone is a solid guarantee to the foreign creditors for more than the sum total of the whole debt—a guarantee such as no other State which has raised a loan in the European money-markets has ever offered before. The Peruvian Government has invited a further examination of the deposits, if the bondholders should think it desirable, and will give every facility for a minute survey. Meanwhile a Commission, under Captain Black, has been engaged in the survey of other deposits to the north of Lima, and has reported that nearly a million tons can be extracted from Lobos de Tierra, Chimbote and Santa, and that a new deposit of 90,000 tons has been discovered on the mainland, a few miles north of Casma.

Don Manuel Pardo has endeavoured not only to meet immediate demands by a careful survey of the guano deposits, but also to provide for the distant future, when those deposits become exhausted. He has adopted measures to control a new rental from the nitrate deposits of Tarapaca, which, on the exhaustion of the guano, will still enable Peru to meet all her obligations to foreign creditors.

The value of nitrate, as a fertiliser, was known to Sir Kenelm Digby and John Evelyn, more than 200 years ago. But there is no subsequent mention of it until 1825 and 1829, when some trials were successful, though its price was too high for its profitable application as a manure. It was the discovery of the vast and practically inexhaustible deposits of nitrate of soda in the Peruvian province of Tarapaca, which made it possible to bring its use within the reach of agriculturalists. In 1853 the old nitre was quoted at 29*l.* a ton, while the Peruvian nitre could be had for 16*l.* The province of Tarapaca was fully described in 1851, in a memoir by Mr. Bollaert;* and the whole subject of the Peruvian deposits of nitrate of soda was ably discussed by that eminent agriculturalist, Mr. Pusey, in 1853.† The first Peruvian nitrate was sent to England in 1820, but the duty being too high it was thrown overboard. In 1830, another cargo was sent to the United States and then to Liverpool, but proved unsaleable at both places. Such is the risk of dealing in a new article; yet, in 1831, another cargo sold in England for 35*l.* per ton, and from that time the demand has steadily increased. The chief expense in producing it was the difficulty of transit from the quarries to the ports of shipment.

* *R. G. S. Journal*, 1851, xxi. p. 99, with map.
† *Journal of the Royal Agricultural Society*, 1853.

Don Manuel Pardo has wisely adopted a measure by which all the nitrate establishments will be bought up by the Government; and the difficulty of transit has now been completely overcome by the construction of railways from the ports of Iquique, Patillos, and Pisagua to the nitrate works. The whole system of communication in the province of Tarapaca includes 180 miles of rails.* The nitrate of soda, next to guano, will thus become a chief source of Peruvian revenue.

Mr. Bollaert and Mr. George Smith made a survey of Tarapaca, for the Peruvian Government, in 1828, and described the deposits on the Pampa de Tamarugal. In his paper of 1851, Mr. Bollaert says that the deposits of *caliche*, or the raw substance, vary in breadth, averaging 500 yards across, with a depth of from 7 to 8 feet. Mr. Bollaert adds that the Pampa de Tamarugal contains sufficient nitrate for the consumption of Europe for ages. The deposits cover 50 square leagues, and, allowing one hundred weight for each square yard, there are 63,000,000 tons. The *caliche*, or raw substance, is taken from the deposits to the *paradas*, or boilers, where it used to be broken with iron bars into small pieces; but now steam power is used. The pieces were boiled in the *paradas*, the fragments and sediment removed, and the water, saturated with nitre, was allowed to settle, when crystallization took place; from 40 to 80 cwts. were made daily in each *parada*. But since 1870 steam machinery has been introduced, and 2500 cwts. can be produced in a day. Potash, iodine, and borax are also produced in the province of Tarapaca. In 1875 the quantity of nitrate of soda exported from the ports of Pisagua, Mejillones, and Iquique, in Tarapaca, was 7,229,507 *quintals*.†

The wealth of Peru is very great, independent of her guano and nitrate deposits. The fertile valleys of the coast are occupied by vine, cotton, and sugar estates, which only need a more regular supply of labour, now provided for by the treaty between China and Peru,‡ to bring them to their full power of production. There are as many as 235 sugar estates on the coast, without including those of Abancay, and other valleys of the interior. Then there are the exports of sheep and alpaca wool, of silver and copper ores, of cotton, of wine and spirits, and of chinchona bark.

England is by far the largest customer of Peru. Out of 1071 ships, with an aggregate tonnage of 698,931, which entered the port of Callao in 1875, as many as 324 (317,554 tons) were English. The United States comes next with 119 ships (135,364 tons). The Peruvian coasting trade is represented by 298 vessels, aggregating 46,820 tons. That trade is increasing we have a satisfactory proof from 355 more vessels having entered Callao in 1875 than in 1874. With England this increase of Peruvian trade has been very great. In 1874 it had reached 3,293,534*l.*, exclusive of guano, which amounted to 94,346 tons, worth 1,207,679*l.* The total exports are worth over 6,000,000*l.* Next to the guano and nitrate, the most valuable article of export was alpaca wool, of which

* See *Geographical Magazine* for June 1874, p. 92.
† For further particulars respecting the nitrate of soda trade, see the *Ocean Highways* for December 1873, p. 285, and the *Geographical Magazine* for December, 1874 p. 388. Also *Travels in Peru and India* (Murray, 1863), p. 306.
‡ See *Geographical Magazine* for December 1874, p. 367.

3,435,786 lbs. were sent to England, worth 443,323*l.*, besides 2,629,742 lbs. of sheep's wool, worth 131,266*l.* Then comes cotton, amounting to 99,492 cwts., worth 305,576*l.*, and 472,783 cwts. of sugar, worth 512,112*l.* The copper ores amounted to 4404 tons, worth 301,278*l.* Chinchona bark amounted to 5972 cwts., worth 69,359*l.*; and the other exports were silver, wine and spirits, coca, coffee, matico, hides, and chinchilla skins. The imports into Peru from England, in 1874, are valued at 1,829,977*l.*

The most noteworthy measures of Don Manuel Pardo have been his endeavours to restore financial prosperity, by reducing expenditure, by increasing the revenue, by surveying the guano deposits, and by securing the enormous wealth contained in the nitrate deposits as a national possession. He preserved order, and suppressed an insurrectionary movement in the end of 1874, personally directing the movements of the troops in the field with promptitude and ability.* He has also paid close attention to the emigration question, and to all measures tending to advance geographical discovery, and to establish a sound basis for statistical investigations.

We have, in a former number, given full particulars respecting the exploration of the Upper Amazon and its Peruvian tributaries by Tucker and Werthermann,† and the examination of routes for a ship canal by the Atrato, undertaken by the expedition under Carrillo,‡ as well as of the useful public works promoted by President Pardo, such as the navigation of Lake Titicaca,§ the improvement of the port of Callao,‖ and the storage of water from the Rimac.**

It is now our pleasant duty to call attention to his liberal and energetic support of measures for placing statistical and scientific enquiry on a firm basis, and to the publication, under his auspices, of the great work of Don Antonio Raimondi.

The volume entitled *Demarcacion Politica del Peru*, prepared and published under instructions from Don Manuel Pardo, first claims our notice. Political boundaries serve as a basis for the census, and for the future cadastral survey, and their exact definition is indispensable for administrative purposes. These considerations led to the preparation of the present work, which gives, in a tabular form, the departments, provinces, and districts into which Peru is now divided, with the names of the cities, towns, villages, and hamlets in each. The tables showing existing divisions are followed by others which will be useful to the historian. They give the divisions existing in Spanish times, the *Corregimientos* into which Peru was divided from 1569 to 1784, with their capitals; and the *Intendencias* and *Partidos* which formed the divisions from 1784 until the final expulsion of the Spaniards in 1824. Then come tables giving the divisions at various epochs since the proclamation of the Republic, especially in 1850, when the first census was taken, and lists of the cities and towns, with the decrees or laws under which they were created. It appears, from the latest census—that of 1862—that the population of Peru is 3,199,000. There are now seventeen Departments and two Littoral Provinces, the Departments being divided into ninety-three Provinces (or an average of five in each Department) and 748 Districts (average of eight in each province). Peru contains 65 cities, 73 towns, 1968 villages, and 6297 hamlets.

Simultaneously with this useful statistical work appears the first volume of *Peru*, by Don Antonio Raimondi. This accomplished and indefatigable geographer and naturalist had travelled over every part of the Republic, on a fixed plan, during a space of nineteen years, diligently collecting materials, before he sat down to prepare his great scientific work on Peru for publication. A native of Milan, young Raimondi had been fired with enthusiasm for exploration by reading the works of Cook, Bougainville, Humboldt, and Dumont D'Urville; but it was chance that fixed his choice of a region as the scene of his own scientific labours. He passed much time in the botanical garden at Milan, and it was the contemplation of a huge specimen of *Cactus Peruvianus* that first turned his thoughts to the land of the Yncas. The idea ripened into a fixed resolve, and, after two years of study of all that had previously been written on Peru, he left his native country, and landed at Callao in the year 1850.

In his second chapter of this first volume, the work of all previous authors is passed in review. The notices of animals and plants to be found in the early narratives of Cieza de Leon, Gomara, Zarate, Garcilasso de la Vega, Leon Pinelo, and Calancha, were supplemented, in the same century, by the fuller details given by Father Acosta. Señor Raimondi also mentions an author who is new to us, Pedro de Osma, who is said to have described many plants of Peru, in a letter from Lima, dated December 26th, 1568.

In the eighteenth century several eminent naturalists visited Peru. The first was Father Louis Feuillée, who was on the coast between 1707 and 1712, and in 1714 published his *Journal des observations physiques et botaniques*, in three volumes. He was followed by Frezier in 1712-14, whose work is well known. In 1736 the famous savans Condamine, Jussieu, and the Ulloas, arrived in South America; and in 1778 the great Spanish botanists Ruiz and Pavon commenced those exploring journeys, some of the results of which are embodied in the *Flora Peruviana*. Tadeo Haënke went on a scientific expedition to Peru in 1790, thence to the Philippines, and finally returned to Peru, and died at Cochabamba in 1817. He is said to have left a mass of precious materials, including manuscripts, the fate of which is unknown. A small work, describing a few plants he had sent home, called *Reliquiæ Haenkianæ*, was published at Prague, one of his geographical papers is preserved in the *Journal of the Royal Geographical Society*,* and there is a third fragment of Haënke on Cochabamba in the work of Azara. Peru herself produced some eminent men of science in the last century, among whom were Dr. Cosme Bueno, Dr. Gabriel Moreno, and Dr. Unanue, the chief contributor to the *Mercurio Peruano*.

In the present century there have been many

* See *Geographical Magazine* for February 1875, p. 56.
† See *Ocean Highways* for October 1873, p. 265. See also the number for August, 1872, p. 138.
‡ See *Ocean Highways* for October 1873, p. 299.
§ *Ibid* for December 1873, p. 385.
‖ See *Geographical Magazine* for June, 1875, p. 185.
** *Ibid* for December 1875, p. 377.

* *R. G. S. Journal*, v. p. 90.

labourers in the rich Peruvian field of research. Among them Fitz Roy and Darwin, Wilkes and Dana, surveyed the coast. Bollaert, George Smith, and Valle Riestra, explored the mineral treasures of Tarapaca. Maw, Smyth, Poeppig, Castelnau, Herndon, Gibbon, Markham, Tucker, and Werthermann, made discoveries on the Peruvian tributaries of the Amazon. The *Cloris Andina*, and the *Histoire Naturelle des Quinquinas* are the results of the botanical labours of Dr. Weddell, while Dr. Von Tschudi, has written on the Peruvian vertebrate animals. Humboldt has made us familiar with Jaen and Cajamarca; and Pentland mapped the country between Cuzco and La Paz, and described the physical geography of the Bolivian Andes.* D'Orbigny's great work is confined to Bolivia or Upper Peru. Geology has been illustrated, as regards Southern Peru, by Pissis and David Forbes; and mineralogy has received elucidation from the reports of Leon Crasnier, and of the Peruvian savans Nicolas de Pierola and Mariano Rivero. Nor should the name of Manuel Pardo, the President of the Republic, be omitted; for his memoir on the province of Xauxa is a most valuable geographical monograph.

But all these men of science, although their work is most valuable, as far as it goes, confined their labours within a limited area. Raimondi has, for the first time, scientifically explored every part of Peru, thoroughly and systematically, and devoted a lifetime to the work. By such devotion alone could his magnificent achievement have been completed. More than a quarter of a century ago he made his first journey from Lima, across the Andes, to the forests of Chanchamayu. In 1853 and 1854 he traversed the whole extent of the province of Tarapaca, from Pisagua to the Loa, and studied the deposits of nitrate and borax. In 1855 he was again in the *montañas* of Vitoc and Chanchamayu. The years 1856 and 1857 were devoted to the provinces of Huanuco aud Huamalies, the scenes of the botanical labours of Ruiz and Pavon. In 1858 he paid his first visit to Cuzco, the city of the Yncas, and went on to the *montaña* of Santa Ana, returning by Ayacucho and Yca. He also made a journey to the north, from Piura to Tumbez. In 1859 and 1860 he went from Trujillo, by Cajamarca, to Chasuta on the Huallaga, ascended the Ucayali to Sarayacu, crossed the Pampa del Sacramento, and returned by the department of Ancachs. The years 1862 and 1863 were devoted to an examination of the coast valleys, from Lima to Moquegua and Tacna, of the department of Huancavelica, and of Puno and the region round lake Titicaca. In the year 1863 Señor Raimondi was elected an Honorary Corresponding Member of the Royal Geographical Society.

In the year 1864 Raimondi was exploring the wild forests of Caravaya, and he then discovered the true courses of the rivers Ayapata and San Gavan. His valuable memoir on these discoveries was published in the *Journal of the Royal Geographical Society* In 1865 he was again at Cuzco, exploring its neighbourhood, and examining the *montañas* of Paucartambo and Marcapata, and the scarcely ever visited provinces of Aymaraes, Chumbivilicas, and Cotabambas. In 1866 Raimondi, after exploring the less-known parts of the departments of Arequipa and Ayacucho, made another geographical discovery of great interest. This was the position of the confluence of the rivers Mantaro and Apurimac. His paper on the subject, which is illustrated by a map, was also published in the *Journal of the Royal Geographical Society.*† In 1867 Raimondi went from Cerro Pasco to visit the German colony at Pozuzu, and the port of Mayru, and he also carefully studied the geography, geology, and mineralogy of the department of Ancachs. This portion of his vast undertaking has already been utilized. Through the munificent liberality of Mr. Henry Meiggs, it was published at Lima in 1873. The volume is entitled *El Departamento de Ancachs, y sus riquezas minerales*, and contains 650 quarto pages, and a large scale map engraved by Wyon.‡ The map brings out one of the most remarkable geographical features in Peru, namely, the "Callejon de Huaraz," which is a lateral valley, with lofty mountains on either side, down which the river of Santa flows, until it forces its way through a magnificent gorge and reaches the coast. There is a striking analogy between the course of the Santa in the Andes and that of the upper Brahmaputra in the Himálaya.

In 1868 Raimondi travelled in the coast districts to the north of Lima, visiting Casma, Yungay, Pacasmayo, Chicama, Chiclayo, and Lambayeque; and, finally, in 1869, he explored the provinces of Piura and Jaen, descending the Marañon to Yquitos and the frontier of Brazil.§

There is scarcely another example of so thorough an examination of a vast region, such as Peru, by a single individual. Its completion places Don Antonio Raimondi in the first rank not only of geographers, but of naturalists and geologists. The Peruvian Congress voted him a sum of 2000 dols. to assist him in his travels in 1858, and a further sum of 3000 dols. in 1860, and by a decree, dated January 28th, 1869, it was declared that the great work of Raimondi should be published at the expense of the Peruvian Government. But it was Don Manuel Pardo who, by his decree of June 20th, 1873, gave complete effect to the previous resolution, and arranged all the details of publication with that enlightened liberality which alone can secure efficient and thorough work.

Under these bright auspices the first preliminary volume has appeared, and, while trembling lest he should not be spared to complete his gigantic task, Don Antonio Raimondi cannot help rejoicing at his good fortune when he reflects how many of his predecessors were cut off in their prime, leaving their labours incomplete and unpublished. The marvellous results of the botanical labours of Mutis are still rotting in a tool-house of the gardens at Madrid. The learned and enthusiastic Caldas met a patriot's death before he had reached his prime. Ruiz and Pavon never lived to see their labours properly utilised. More fortunate than these, Raimondi has had his work appreciated by a liberal and enlightened Government; and we most earnestly trust that he may be spared not only to complete his great and useful

* *R. G. S. Journal*, v. p. 70. † *Ibid*, xxxvii. p. 116.

* *R. G. S. Journal*, xxxviii. p. 413.

† See a review of this work in the *Geographical Magazine* for May 1874, p. 78.

‡ Señor Raimondi has already published a short account of the part of Peru in the Amazon Valley. *Apuntes sobre la Provincia Litoral de Loreto (Lima).*

task, but to enjoy the pleasure of beholding the good that it will work among his adopted countrymen.

The first volume (*Parte Preliminar*) is the key to the whole work, for it describes the methods used for investigation in the various branches of science, the instruments that were employed, and gives a most interesting personal narrative of the author's numerous journeys, during nineteen years, over the length and breadth of the land. He dedicates it to the youth of Peru, of the adopted country which has received him so hospitably, in the assurance that they will worthily continue the work that he has commenced. The life of one man, even if he works as Raimondi has done, is too short to do more than begin such an investigation as he had planned; and not the least useful result of his labours will be the emulation that they cannot fail to excite among the countrymen of Unanue, of Rivero, of Vigil, of Paz Soldan, and of Pardo.

The preliminary volume has now been published. The work itself will consist of six parts. The first will be devoted to geography and meteorology. The second part will treat of the geology of Peru, and the third of mineralogy, including analysis of the thermal springs of Cajamarca, Yura,* and Laris near Cuzco. The fourth and fifth parts will treat of the botany and zoology of Peru; and the sixth and concluding part will be devoted to ethnology, including descriptions of the architectural remains, pottery, arms, &c., of the different Peruvian tribes.

The publication of this magnificent work does honour alike to Don Antonio Raimondi and to the Peruvian nation. He has given up his life to his adopted country, and Peru has known how to value so precious a gift, such rare devotion. If the decree on the publication of Raimondi's work stood alone, it would suffice to render famous the administration of Don Manuel Pardo; and while the great Italian savan must be considered fortunate in having received such warm appreciation from the Peruvian Government, Peru is equally fortunate in having secured the services of a man of such varied accomplishments, such single-minded zeal, such untiring energy, as Antonio Raimondi.

Clements R. Markham.

THE ISLAND OF PALAWAN.

It appears almost incredible after a lapse of more than three centuries since Fernando Magellan, the father of circumnavigation, prosecuted the voyage from Europe to the East Indies by a westerly course, and discovered the Philippine Islands, that an island of no mean proportions in that group should, to this day, be almost a *terra incognita*. The treasures of California and Australia were doubtless, for some wise purpose, hidden until late years from the gold-seeker; and the Island of Palawan, though partially colonized from Manila, has remained comparatively isolated, by reason of the approach to its coasts being protected from intrusion by a formidable barrier of coral reefs, a danger to be avoided by the general navigator, until the labours of the hydrographer led to the spread of commercial enterprise.

Although for so many years these seas have been traversed by the trade between India and China, yet, when near Palawan, the same precautions are necessary which are said to have been adopted by Columbus: "As his course lay through seas which had not formerly been visited, the sounding line or instruments for observations were continually in his hands."

And Sir Rodney Mundy, in his *Journal in Borneo*, says, "The navigation of that part of the China Sea immediately to the northward of Borneo is the most dangerous of any part of the globe traversed by European vessels. A glance at the map shows us a space of water literally studded with coral reefs and patches of rocks, and instead of being surprised at the number of accidents which annually occur to the shipping which enter this highway of the sea, we are astonished that so many should succeed in passing through in safety; but when added to these natural impediments to a secure communication with the coast of China and the Philippines (whose commerce is yearly becoming of greater importance to Great Britain), it is known that, in the event of shipwreck, there is no hope for the wretched mariner if compelled to take to the boats and to abandon the vessel, we may well deplore the lamentable fact that the great naval powers of Christian Europe have not long ago united to suppress the piratical encounters."

The narrow views of those European nations which early drew resources from the Indian Archipelago precluded the aborigines from making progress in civilization until a new era dawned on a portion of them, under the auspices of Sir Stamford Raffles, whose enlarged and philanthropic policy has since been so successfully emulated by Rajah (Sir James) Brooke. For the improvement of the social condition of its inhabitants and for the development of its resources, the Island of Palawan is probably reserved for the labours of another Brooke; for whom the late Capt. W. T. Bate, during his survey of its shores, has to some extent paved the way.

H.M.S. 'Royalist' (a barque of 250 tons), after spending a few months in the examination of the islands fronting the Canton River, proceeded to the Island of Palawan, in April 1850, calling at Manila on her way to rate the chronometers and carry on the meridian distance to her new work. She eventually anchored, on the evening of the 26th April, near a small island at the N.W. side of Yloe Island, which, being an eligible position for the commencement of the survey, was called Observatory Island, and made the starting-point. This is the northernmost of an extensive group irregularly scattered in front of the N.E. portion of Palawan (or, as it is called by the Spaniards, Paragua), for about 60 miles, viz., from the northern point of Palawan southerly as far as the large Island of Dumaran.

Palawan is about 240 geographical miles in length, between lat. 11° 30′ and 8° 20′ N., lying in a N.E. and S.W. direction, the longitude of its centre being about 119° E. of Greenwich: its general width is scarcely 20 miles, while contractions at two positions bring the opposite coasts within 5 miles of each other. The hills, which extend nearly the whole length of the island, attain an elevation of from 3000 to nearly 7000 feet; the highest part being the Mantalin-

* Don Antonio Raimondi has already published "*Analisis de aguas ternales de Yura, aguas minerales de Jesus, y aguas potables de Arequipa.*" (Arequipa, 1864.)

galean Mountain, toward the southern end of the island, which is 6843 feet above the sea.

It possesses three good harbours, one on the east coast, which we named Port Royalist, but which we have since been informed is named Princesa by the Manila Government, which has established, since the 'Royalist's' visit, a penal settlement there: and Ulugan Bay and Port Barton, on the west coast.

The northern half of the island is occupied by Manila settlers, extending as far south as Apurawan on the west coast, in small villages about 10 and 15 miles apart, containing an average of 40 inhabitants, with the exception of its seat of government, Taitay, on the east coast, which has 600, Dumaran 500, and Bacuit, on the N.W. side, about 200. These settlers, as we were informed, pay to the Government one dollar per head as tribute. A bare sufficiency of rice and maize for home consumption appears to be the extent of their cultivation. Trepang (*beche de mer*), birds-nests, tortoiseshell, and beeswax appear to be the principle articles of trade.

By means of a handloom, which we found in use at Dumaran, they manufacture a rather coarse fabric from the fibre of the plantain (which in Tagala is called Sāgin) for wearing apparel.

Cattle, poultry, fruit, and garden produce they import from the Cuyos Islands, which lay to the eastward, towards the great island of Panay.

Taitay was governed by an Alcalde, but at the period of the 'Royalist's' visit that official was on sick leave at Manila, and his *locum tenens* was the Lieutenant of Infantry or Police, of which force they had 100 for the maintenance of order and collection of the tribute from all the settlements, assisted by gunboats, which visited the neighbouring islands. The troops compose the garrison of an old but formidable-looking fort, which stands on a low neck jutting seaward from the town. On the keystone of the gateway to the fort is the date A.D. 1720. This structure forms a retreat for the inhabitants when attacked by the Malay pirates from the south. The houses are constructed of the Nebong palm, raised on piles eight or ten feet above the ground. Taitay being dependent on the Cuyos for their supplies, we were unable to procure any refreshment there for our crew; water was likewise scarce.

Dumaran, the second settlement in importance, is situated in the bottom of a small bay on the S.W. side of the large island of the same name. Its fort stands on a hillock, an ancient structure in the crucial form, but in a dilapidated condition. The church is situated in the centre of the fort. Over the gateway, on a block of granite, may be traced the Spanish arms. Rice, maize, sweet potato, tobacco, and cotton are grown here, and the soil and undulating surface appeared better adapted for agriculture than the Island of Palawan. The appearance of Dumaran from our anchorage in the boat was very pleasing at sunrise. Aurora, in her best of humours, seemed to shed a warmth over the rich verdure, impartially varying the direction of her smiles alternately over hill and dale, and improving the picture by a rapid interchange of light and shade. The odd architectural specimen in the old fort occupied the foreground, closely flanked by a grove of cocoanut trees, through which a few thatched huts were peeping. A convenient landing would have in nowise marred the picture, but in the absence of such mark of civilization we contented ourselves with the broad shoulders of our boat's crew over about 100 yards of muddy beach before reaching the base of the fort. The houses are built of the usual light material, raised on piles, in streets or roads laid out in some order. Agriculturists appear only to occupy their farms during seed-time and harvest, residing at other seasons in the town, I presume for mutual support in case of the enemy, and to have the protection of the fort, from which a gun is fired to warn all absentees when a Lannu fleet is seen.

At one end of the town we were attracted by the concentrated voices of many children to an educational establishment. The teacher, about fifty years of age, was very communicative. He informed us he had about seventy scholars whom he taught to read. His salary, from the Manila Government, being the liberal sum of eight dollars per annum (thought we—what can you expect for twopence), so we were not surprised at his replying to our inquiry whether he taught arithmetic? that he had no acquaintance with that subject. The books chiefly in use were religious primers and breviaries in the Bisaya language.*

All the minor Spanish settlements along the coast possessed a rude wood structure with upright piles on an elevated situation to serve as a stockade, to which its inhabitants might retreat when the Lannus made their appearance. We, however, thought their apprehensions of such attacks groundless, until the people at Pancol, in Malampaya Sound, on the N.W. coast, requested Captain Bate, who was there in his gig, not to leave them one evening to return to the ship, as a fleet of pirates were reported approaching. Though doubting the fact, yet, to satisfy these anxious villagers he remained, and set a watch, which was vigilantly kept till morning, when, no enemy being in sight, we started for the ship, which was nearly 20 miles distant, with numerous islands intervening.

Pancol was about three miles astern at sunrise, when Captain Bate discerned what he conceived were three canoes, under the high land on the opposite shore, and directed that the boat should be steered for them, exclaiming, "there are those rascals." But it was suggested to him that if they were the Lannus apprehended by the Spaniards, it might be advisable to make our way to the ship for reinforcement, as one small five-oared gig would scarcely be a match for them. In the captain's judgment, however, they were but a handful of blackfellows in three canoes, and our crew bent to their oars with a will to get alongside of them, while the doctor and purser loaded the muskets in readiness. Fortunately, before our distance was much diminished Captain Bate discovered his mistake, when, in addition to the three *canoes*, which proved to be long, low vessels, pulling forty oars each, there were five large prahus, with seventy men in each, which had previously been hidden under the high land. To turn in the direction of the ship now became imperative, when the change in our course was the signal for this formidable force to give chase, and try the range of their long brass pieces, which at first fell short, but their superior speed soon brought them within easy range. Their skill as artillerymen, however, was not

* A grammar of the Bisaya language, by Father Domingo Ezguerra, was published in 1662, and a second edition in 1747. Both editions are excessively scarce. (*Ed.*)

equal to such a small target as a five-oared gig; nevertheless, their furious pace promised to make short work with us, had not our St. George's Ensign happily unfurled itself to the breeze, acting like a magic spell on their nervous system, for the large prahus immediately lowered their sails and sheered off, leaving two of the smaller vessels to watch our movements. It was now evident that, seeing us proceeding from Pancol, they concluded we were Spanish subjects, and had no idea of a British vessel being in those waters until they saw that flag which they had been painfully intimate with a few years before. Within half-an-hour of their giving up the chase we were in sight of the ship, lying at anchor to the north of Island Tuluran as we emerged from Endeavour Strait. Manning and arming boats, and getting ship under weigh, we assumed the offensive, the boats (four), with forty men, retracing the gig's track down Endeavour Strait, while the ship beat down outside to cut off their retreat by Blockade Strait. Two days' diligent search was insufficient to discover their haunt, and surveying duties were again resumed; but, profiting by recent experience, a watchful eye was ever after cast for "strange sails," though the head-quarters of these cruisers we supposed to be Mindanao, in the Sulu Sea, and not, as within a few months we found it to be, on Palawan.

Prosecuting the survey of the west coast, southerly, Ulugan Bay was examined. The origin of the name Ulugan we did not discover; but it is known to the few residents we met with by the name of Ba-nōg. We found three men residing here in the employ of Esteban, who is the principal resident at Bacuit, and it appears, from what we could learn from individuals in his employ, that he farms the trade of Palawan on both coasts of the northern end, for which he pays, it was stated, 1000 dollars *per annum* to the Manila Government. Beeswax appears to be the only item collected at Ulugan Bay, for which, it was said, Esteban pays them 25 dollars a *picul*, which we were informed was the same price as that paid for *beche de mer* and birds-nests. The two latter, however, are not procurable here, it was said. Of the beeswax the amount annually collected was about three *piculs*. Rice, maize, sweet potato, plantain, sugar-cane, pine-apples, and passan (custard apple), grow here. The native tribe was said to be numerous, but they were not visible to us. Recognizing the importance of maintaining the native names where procurable, we ascertained that the mount which we had named after Sir Robert Peel was called Ba-hé-lee, as was also the river which flowed from its foot, and emptied into the south part of the bay.

The language usually met with in this part is Tagala,* which, we imagine, becomes in some measure mixed with Malay, or probably the Dyak of Borneo; as, for example, a chopping instrument, which at Manila is called *bolo* at Ulugan Bay was *pira*, and by the Sea Dyaks (according to Low in his *History of Sarawak*) parang, the Tagala word for beeswax is pag-kit.

Proceeding along the coast southward from Ulugan Bay no inhabitants were met with until we had advanced about thirty miles, when, approaching the coast in the boat near Anipahan, three men were observed on the beach, exhibiting what appeared like a white flag, but as we drew near the flag was taken down and worn by the bearer as a shirt. Finding them familiar with Spanish, we did not hesitate to land, when the writer immediately recognised the shirt which had done duty as a flag of truce to have been one which he had bartered for poultry the previous year at Port Royalist, on the opposite coast; but during that period it had been quite innocent of soap. The point at which this interview took place was named Shirt Point. A few days later, on the 17th July 1851, we reached Apurawan, the most southern station of the Manila subjects on the west coast. We met here an intelligent young man named Pedro in the service of Esteban at Bacuit, to whom he is related. He informed us of the existence of a Malay district to the south of this, called Ma-la-nut, which is presided over by a sultan, so that for the future we need to be specially on the *qui vive*. We visited Pedro's residence, a snug hut, about three miles back from the beach. Mangasteens, which they called *bo-nog*, were growing wild, also a fine umbrageous tree, which is probably the same or similar to the Tapang tree, described by Low in Borneo, called by Pedro the Low-au. Soon after landing here we met a native beside a stream, where he had kindled a fire to cook a fish which he had just taken. My sudden appearance startled him, and fear seemed to render him speechless, for he could not be induced to utter a word in reply to many gestures, that he would explain the mode by which he obtained fire.

The aborigines of Palawan, we apprehend, are the same as those of Mindoro, described by M. Mallat in *Les Philippines*, vol. ii. p. 93, and called Manguianes (see Earl's *Papuans*). Mr. W. Marsden, F.R.S., in his history of Sumatra, shows cause for assuming ethnologically that the race is identical, "from Madagascar eastward to the remotest of Captain Cook's discoveries, comprehending a wider extent than the Roman or any other tongue has yet boasted;" while Mr. Thomson, F.R.G.S., in his notice of a journey in southern Formosa, read before the Royal Geographical Society, in March 1873, would extend the connection to that island also, in which he is borne out by the remarks of Sir Richard Collinson, C.B.

Marsden, however, in speaking specially of Sumatra, says, "Besides the Malay there are a variety of languages spoken in Sumatra, which have not only a manifest affinity among themselves, but also to that general language which is found to prevail in, and to be indigenous to, all the islands of the eastern sea." We would here presume to transpose the order in which the race spread, as mentioned by Marsden, and say *from* the east toward the west by the course of the trade wind, instead of *from* Madagascar to the Eastern Archipelago. Had, however, the Philippines been colonized by Anglo-Saxons, we venture to predict that those Bedouin neighbours who now keep the Spanish subjects in awe would have themselves been in subjection.

The native above-mentioned was possessed of a *sumpitan* and quiver of darts, the points of which he exhibited some alarm at our attempting to touch, from which we presume they were poisoned. The

* A grammar of the Tagala language, by Fray Manuel Buzeta, was published at Madrid in 1850. But it is very scarce in Europe, as all the copies were sent out for the use of missionaries. (*Ed.*).

sumpitan is a bamboo tube about 8 feet in length, through which arrows 9 or 10 inches in length are projected by the mouth; the points are usually poisoned with upas juice, and the other extreme balanced with a piece of light pith.

A further stage of 30 miles south of Apurawan, before meeting any signs of inhabitants, brought us to an indentation in the coast line with a river apparently running into it. Being in need of water on board the ship, the writer, who was in-shore with his boat, entered the creek to ascertain if the water was fresh. He had scarcely ascended it more than two miles when a large canoe, with twelve persons in unmistakable Malay attire, was seen to enter the river astern of us. We had no doubt now that we had arrived at Malanut, the head-quarters of the Sultan. So hailing the new arrivals in as much Malay as our limited vocabulary would allow of, we inquired if the Sultan was above? that we had come from a kapel praanj Egris (a British ship of war) to pay our chief's respects to the Sultan—a communication which was received with evident satisfaction by the principal personage in the boat, who proved to be the son of the Sultan. Another mile brought us within sight of the town of Malanut, the extent of which, together with its building-yard and large prahus on the stocks, satisfied us of their strength. The son, inviting us to land and walk to the Sultan, whose residence was at a little distance, furnished an unexpected excuse to escape. As the evening was closing he was informed we could not land, as our chief would expect us before dark, but that he would come in person the following day. They could not, however, suffer us to depart until they had laden our boat with presents, consisting of cocoa-nuts, plantains, &c., which greatly surprised our shipmates on our return, and Captain Bate did not hesitate, after such a friendly demonstration, to fulfil the promise made in his name to visit the Sultan. On the following morning, with our small flotilla of four boats, with colours flying and all in uniform, we made our appearance before Malanut, and were met by the Sultan's son at the landing, to escort us to the Audience Hall, where a sickly old man, very scantily attired, received us, he sitting cross-legged on an ottoman, and the room lined all round with his guard. As soon as we had taken the seats prepared for us, and the formalities of presentation were over, the Sultan was asked through our interpreter, what his population consisted of. He appeared to embrace all the southern end of the island as his territory, which contained about 3000 souls, and explained that hearing there were pirates on the coast he had sent a fleet to the northward to intercept them. His description of his fleet was five large prahus, with seventy men in each, and three small ones, with forty in each, so precisely corresponded with those who had chased us just two months before. About the character of our host we could have no doubt. He was then asked from what part of Borneo he came, when he replied from Malludu. One of our party having been engaged in destroying a nest of pirates there in 1845, he was asked did he know the Rajah Sheriff Ousman there? "He was my cousin," he answered, "but he is dead." We heard, we told him, that he was wounded, but did not know of his death. The recurrence of that time to his mind was very palpable by the excited flash of his eye and the animation he exhibited, when he inquired, looking at the officer who put the question, "Were you there?" "I was"—a reply which Captain Bate thought most injudicious, or at all events that the circumstance had better not have been alluded to. The Sultan, however, turning to his armour-bearer at his shoulder, desired him to bring from the armoury a klang (a large sword) that was at Malludu on that occasion. On its arrival the Sultan most chivalrously presented it to the officer as a token of friendship to an old enemy. This very friendly demonstration induced Captain Bate to consider him worthy to receive a staff officer's scarlet coat and epaulettes, which General Staveley, the Military Commander-in-Chief in China had given us for any deserving chief we might meet. It was accordingly presented to him, and he was requested to wear it whenever any British subjects might visit him, and he undertook to assist any vessels that might be in distress on his coast. This brought our interview to a happy termination.

I would here relate our first intercourse with the Malays in the previous year, which occurred on the east coast of the island, and a little to the south of Malanut, on which occasion the writer met them under similar circumstances when surveying in-shore, while the ship was out of sight to seaward.

We had surveyed the coast from Port Royalist to the southward for nearly 90 miles, without meeting any inhabitants; it was some relief to the monotony to observe about a dozen men on the beach, and we were curious to ascertain whether they would prove a Spanish-speaking people or not. A heavy surf forbade a too near approach to the beach in the boat, so bringing her to anchor at a safe distance, we exhibited the British ensign, supposing it would be known to them; at the sight of which the men fled from the beach, and after a few minutes returned well armed with spears, and with angry gestures. Presuming from their dress that they were Malays, they were asked whether they knew the flag? "Yes, we know the colour (which unfortunately was *red*), but not the country, and if you are for war we are ready for you but" (pointing to their turbans, which were white), they added, "we are for peace," to which we rejoined that if the colour offended them, we would be as white as they, and immediately substituted the obnoxious red for a white handkerchief, and then informed them that we were Egris (English). They had never *seen* any Englishmen before, but they had heard of one man whose noble character had stamped our whole nation favourably in this people's estimation, for they at once enquired, "Do you know Tuan Brooke?" Hoping we did not take an unwarrantable liberty, with that good man's name, we replied, "He is a friend of ours." This sealed the matter in our favour, for, in demonstration of their peaceful intentions, they turned their backs to the boat, and facing the scrub, from which they had brought their weapons, threw them back whence they came, and then, facing round to us and extending their arms in a most friendly way, invited us to land. There was an unmistakable sincerity stamped in their actions that, although we would not risk the boat landing in the surf, the writer, accompanied by Ramysammee, a Cingalese boy, to act as interpreter, swam to the shore, and were met half way by the natives, who helped us through the surf. We could not have been more impressed with the importance of the deportment of an individual among a

strange people, than we were by witnessing the effect of Rajah Brooke's example, as communicated to these people by traders from Borneo; one of whom we met at a subsequent visit to this place bearing a certificate which had been given him by Sir James, of which the following is a copy:—

"H.M.S 'Alexander,' Malludu Bay,
9*th Dec.* 1848.

"The bearer, Sheriff Hassen, is a well-disposed and quiet person, exercising considerable influence in Malludu Bay, and its vicinity. He has engaged to advance a legitimate commerce, and to assist Europeans who may be distressed.

(Signed) "J. Brooke,
"*Commissioner.*"

This document was evidently valued by the holder of it, who is an intelligent man, procuring rice, beeswax, and tortoiseshell, in exchange for cotton piecegoods, brass wire, and crockery.

This district of Tacbolubo is presided over by a Datu, named Tam-mi, and from their fears expressed respecting Lannu pirates, we may assume that they have no connection with the Sultan at Malanut, on the west coast, who, I fear, is quite innocent of what Rajah Brooke calls "a legitimate commerce." From the foot of Mantalingahan Mountain to the shore of Tacbolubo, a distance of about five miles, is rich alluvial land, several acres of which the Datu has in a state of cultivation. At the close of an interesting and friendly visit to his homestead, we presented him with some portions of sacred Scripture, and Christian tracts, printed in Malay, which he thankfully received; and in taking leave, expressed our pleasure at finding him in the enjoyment of health, a rich soil, and many other things, one thing only wanting to complete his happiness. "And what is that?" he enquired, "Why, the knowledge of the true God, who gives you all these things." His remarkable rejoinder to that was but another proof, stronger than ever, of the estimation in which Rajah Brooke was held for virtue and truth. "I have heard," was his reply, "that you Egris have only *one* tongue, and I wish we were like you." Would that the ill-informed Peace Congress could have heard this observation. Here was an admission that Brookes' word was his bond, while the Malay was ready to admit their weakness of having more than one tongue, or duplicity.

Beautiful streams from the mountains rush here fresh into the sea.

Amidst all the hair-breadth escapes while navigating these seas without a chart, it is cause for much thankfulness that the only serious encounter which the 'Royalist' experienced with the coral reefs, occurred at Cape Disaster, the north end of Balabac Island, when, approaching it from Singapore, on the 28th of October, 1850. Seeking an anchorage after dusk, while blowing strong from west, at 7.15 P.M., she struck with violence, and remained thumping, with the exception of a few hours at low tide, until nearly 2 A.M. of the 30th. She then floated off to the anchor, which had been laid out astern, leaving her false keel behind her, and her main keel ground down to the bare planks, yet without the slightest leak or anything to prevent her continuing her work on the coast, excepting the occasional inconvenience of a deep sea line being entangled with the bolts from which the keel had been wrenched. So much for a solid teak bottom, which would have exceeded Mr. Plimsoll's most sanguine expectations or desires. Eleven feet of the keel was recovered from the reef, and served us in good stead five weeks later, when an accident to the capstan brought it to a useful purpose.

The 'Royalist' did not reach the slip at Hong Kong for repairs until the 14th February following, and on the next day a coincidence happened which the superstitious mariner of a former century would have received as a joyful omen. As the mail-steamer from Suez entered the harbour by the western approach, having on board as a present from Lady Franklin to one of our officers (whose *heart* had been in Arctic work since May 1845), a likeness of Sir John Franklin, Captain (now Admiral Sir Richard) Collinson in H.M.S. 'Enterprise' entered the harbour by the eastern channel, having arrived from Behring's Straits to winter. One could scarcely resist the temptation of viewing the coincidence as a favourable omen that the search of the 'Enterprise,' would be crowned with success. This reunion with his former captain and true friend, was most refreshing to Captain Bate.

The prevailing geological feature at the northern end of Palawan for nearly 50 miles is a limestone formation, precipitous cliffs on both coasts from 100 to 200 feet high, and similar fragmentary islets fronting the shore. All were waterworn at the base, penetrating from 15 to 20 feet, the outer edge being about 8 feet above the sea. These cliffs furnish a lucrative industry for the intrepid natives, who ascend their perpendicular face to reach the caverns in which the edible birds-nest is found. There are two qualities of nest procured, a white and a brown kind, the former being the most valuable, and is said to be of more recent formation than the latter. At one of these cliffs on the western coast at Bacuit we visited a cave, which is reached by a narrow track cut in the cliff, and called the "Retreat Cave," to which the people, or as many as it would contain, would escape from pirates, who they call Mooros. An inscription, with some display of art, on the inner wall of this cave records the arrival of a piratical fleet of six vessels at 3 P.M. of Wednesday, 5th May, 1825, the last line of which is somewhat indistinct, probably wishing death to the Moors:—

el dia miercoles
5: de maio de a-
ño de 1825: a las 3
pr. la tarde: cuando
llego los 6 embarcacioñ
r t te Moo os.

With respect to the language of the occupants of the Spanish end of the island (if we may so term the northern), that in common use was called sometimes Bisaya, and at others Tagala. Whether they are distinct dialects or not we will not venture to say; but from finding the books used in the school at Dumaran, published at Manila, in that called Tagala, the writer, when at Manila, obtained a very copious dictionary and a sort of grammar combined, published by the Archbishop of Manila during the last century. It contained the meanings of words in Spanish, and on our arrival in England, in April 1852,

hoping it would be useful to the British and Foreign Bible Society, who might with its aid translate the Scriptures into Tagala, it was given into the hands of the Secretary, and no doubt members who may be interested in examining the language can have access to it.

Leaving Palawan for a season to recruit at Hong-Kong, the 'Royalist,' on 24th December, 1851, called at Palaon Bay, on the west side of Mindoro Island, on her way north. This island is similarly occupied to Palawan by settlers from Manila, and they likewise complain of being subject to piratical visits from southern neighbours. They informed us that seven prahus, with about fifty men in each, plundered Palaon on the 22nd of May last, killing one man, wounding another, and taking captive a man and five women. One of the latter was the wife of the wounded man, who exhibited the wounds he had received on the occasion, in his endeavour to rescue his wife. From this the fleet sailed to the S.W., and was, we have no doubt, the same which chased our boat about three weeks afterwards in Malangsaya Sound.

We were enabled at this place to procure for our Christmas fare a buffalo weighing about 305 lbs. for eight dollars, a large pig for five dollars, and three fowls for one dollar. Fresh water was likewise easily procured from a creek.

Our ears were attracted here one evening by the sound of a Jew's harp. Following the direction, we found a man performing on a strip of bamboo about 15 inches long and a quarter of an inch wide. The end for the mouth was ingeniously thinned down to produce the spring from which the tongue was slit. He called it Su-bing. The writer having been invalided at this period of the survey, the journal terminates rather abruptly.*

Crawford Pascoe,
Commander R.N., F.R.G.S.

Alexandra, Victoria, *24th January*, 1876.

EASTER ISLAND TABLETS.

Easter Island, or Rapa Nui, celebrated for the gigantic stone images which are so plentiful in it, and which were first described by Captain Cook, is the most isolated spot in the Pacific Ocean, being 2000 miles from the South American coast, and 1000 from Pitcairn, or the Gambier Islands. Dr. J. Linton Palmer, R.N., when Surgeon of H.M.S. 'Topaze,' visited Easter Island, and on the 24th of January, 1870, he read an interesting paper at a meeting of the Royal Geographical Society,† in which he gave a graphic description of the island, its people, and its remarkable antiquities.

Among other curious relics found at Easter Island, were some small tablets of hard wood, incised with symbols, the meaning of which has long been a puzzle. On March 6th, 1876, Dr. Palmer read a paper on the subject of the Easter Island tablets, at a meeting of the Liverpool Literary and Philosophic Society.

There are but eight of these tablets known: four are now in Tahiti, two in Chili, two in Russia. The first three were discovered by the Chilian exploring expedition of 1870. One was lost in its passage to France. They were found in the half-underground stone houses near the Great Crater. It is said that in 1864 they were common, but that most of them were destroyed after the coming of the missionaries. No similar tablets have yet been found in any of the various groups of islands in the South Seas. The tablets are grooved into shallow channels. In them are incised figures and symbols—some very odd, some apparently images of such objects as eggs, birds, turtles, &c.; some are compounded of these and an arbitrary mark; some seem simple arbitrary marks. Each symbol, it is said by the first missionary, had its own signification (*nomboe*), and that they were still copied by the natives, many of whom had forgotten their primary meaning; and again, that much importance was not attached to these tablets.

The characters in the grooves are reversed, cut upside down in every alternate line, so as to prevent confusion in reading them. This method is called *Bonstrophedon*, and was used by various ancient nations, the Greeks, for example. Instances occur also among the Himyaritic inscriptions lately found in South Arabia. There seems to be also a division into paragraphs, by a vertical line of half-a-dozen nicks.

No sooner had casts of these tablets arrived in England, than several people began the task of trying to decipher them. Of these Mr. Park Harrison seems the most zealous, and he has read two papers about them before the Anthropological Institute. As, however, he had no Rosetta stone, so to say, to correct his suppositions, his attempts do not seem to have been very successful.

Quite recently, Dr. Palmer has received from our Consul-General at Tahiti four photographs, and a brief notice from Monsignor Janssen, the Vicar-Apostolic of Tahiti. He gives the following details respecting the four tablets in the Roman Catholic Mission at Tahiti.

One contains	1547	characters in	16 lines
Another do.	1135	do.	22 do.
do. do.	822	do.	17 do.
The fourth	806	do.	28 do.
In these	4310	characters.	

The sign for Earth occurs 362 times.
That for Sky or Heaven 115 do.
Do. Man ..... 454 do.
Do. Bird .... 261 do.

The following is an extract of the letter from Consul-General Miller at Papeite :—"Monsignor, some time since, assisted by some of the Easter Islanders, undertook the task of endeavouring to decipher these characters, and has filled a considerable number of sheets with the notes of his, as yet, unfinished work, now laid aside for a while, but which he will resume at some future opportunity, intending eventually to publish the result in the periodical of his own Society, the *Picpus*, which he frankly says he wishes to have the benefit of first giving publicity to the fruit of his labours. Hence the brevity of the notice. He has, however, expressed more than once his decided

* The first chart of Palawan is that of Faveau Quesada in 1753, afterwards published by Dalrymple. One of the west coast was also published by Dalrymple in 1761. Captain Bate's chart of Palawan was published by the Admiralty in 1854, with plans of four of the bays, and charts of Dalawan and Balabac Islands.

† *R. G. S. Journal*, xl. p. 167.

opinion that the tablets record nothing of importance; and, that though the character inscribed in them may be of ancient origin, yet the work itself is modern, and relates nothing, he is convinced, beyond the stories of a childlike, ignorant people. It would seem that in certain districts of Easter Island, 'wise men' taught the art of reading or reciting from these tablets, some of which may still be found preserved among the few remaining natives left on the island. Those who were brought to Tahiti included among their number some who said they could read this picture writing, and some have chanted or recited to the Bishop from his tablets little tales of the simplest kind—such, in fact, as the islanders might be expected to be capable of producing."

That is the sum of the communication, and it is to be hoped that the labours of Monsignor will soon be published. If the inscriptions are but the folk-lore of the islanders, they will yet be interesting acquisitions.

COLONEL STRANGE.

The death of Colonel Strange, F.R.S., the Inspector of Scientific Instruments at the India Office, is a loss which cannot easily be replaced. His remarkable talent as a mechanician, combined with his experience and knowledge of the work of surveyors in the field, are gifts which are rarely combined, in so high a degree, in one individual.

Alexander Strange, a son of the late Sir Thomas Strange, was born on April 27th, 1818, was at Harrow, and in 1834 went out to India, appointed to the 7th Madras Light Cavalry. In 1845 he was a young captain, and, when on sick leave at Simla, he made the acquaintance of General Boileau, who was in charge of the meteorological observatory. His extraordinary talent for instrument-making was even then developed, and he was actually engaged in making a transit instrument when General Boileau first knew him. That officer, on a vacancy occurring in the Department of the Great Trigonometrical Survey, strongly recommended that young Strange should have the appointment, and Lord Hardinge, who was then Governor-General, took the advice of General Boileau.

In 1848 Captain Strange received charge of the great longitudinal series from the Sironj base to Karáchi. The triangulation had to be taken over the rugged range of the Aravalli mountains, then over the great *Thurr*, or desert, to the north of the Ran of Kách, and, finally, across the Indus valley, a distance of 668 miles. The chief difficulty was the crossing of the desert, which furnished only three things useful to man or beast, namely, grass immediately after the rainy season, limited supplies of milk, and brackish water in deep wells, scattered at wide intervals. The arrangements included the supply of provisions of every description for 200 men, and their distribution to numerous detachments. These operations, requiring so much calculation and foresight, remind one of the precautions and minute attention to details which alone enable the Arctic traveller to explore the unknown region round the Pole. Like the Arctic officer, the leader of the Great Longitudinal Series had to form depôts of food at certain intervals for his people, and to calculate exactly the weight of the food consumed by each man, and the weight his camels (the sledges of the *Thurr*) could carry at each trip. The work was completed on April 22nd, 1853. Captain Strange afterwards had the principal charge of measuring the Karáchi base, under Sir Andrew Waugh, which was commenced on December 6th, 1854, and completed on January 20th, 1855.

In 1855 Captain Strange was appointed to take charge of the Eastern Coast Series, where he had to contend against the difficulties of an inaccessible country, an unhealthy climate, unfavourable states of the atmosphere, and an inefficient native staff. He, however, made steady progress, until he was obliged to retire in August 1860, and he returned to England, with the rank of lieutenant-colonel, in January 1861. In addition to his ability as a surveyor, his rare knowledge of the mechanism of mathematical and astronomical instruments, his never-failing resource in an emergency, and his inventive faculty, rendered him a pre-eminently valuable member of the Survey.

On his return home Colonel Strange entered upon a career of usefulness which was closely connected with his surveying work in India. In 1862 the supply of a complete set of new instruments was sanctioned for the Great Trigonometrical Survey, and in the following year the importance of having all instruments for India subjected to special scientific examination became apparent. It would have been impossible to have found half-a-dozen men in England who combined the experience of India, knowledge of the highest branches of mechanical science, fertility of resource, and inventive genius, which are required in the officer to whom the superintendence of the manufactory of instruments for the Indian surveys could be properly entrusted. Colonel Strange possessed these qualifications in a high degree, and in 1863 he was appointed to examine and test all instruments ordered for India. In 1861 he had been elected a Fellow of the Royal Geographical Society; in 1864 he became a Fellow of the Royal Society, and from 1867 to 1869 he was on the Royal Society's Council. He was also an active member of the Astronomical Society, and for some years its Foreign Secretary.

A special observatory for testing the instruments was a necessity, and it was erected, after Colonel Strange's designs, at the warehouse of the Store Department of the India Office, in Belvidere Road, Lambeth. A full account of the observatory, and of Colonel Strange's system of conducting his duties, will be found in the *Memoir on the Indian Surveys* (page 141). His most absorbing work was designing and superintending the construction of the grand new set of instruments for the Trigonometrical Survey.

When Colonel Strange was first appointed to the post of inspector, there was no one kind of instrument supplied to India which was not faulty, either in respect of form, principle, workmanship, or material, frequently in all these respects. Parallel rulers were not parallel, protractors indicated angles enormously in error, scales and level staves were incorrectly graduated, spirit levels were imperfect, barometers had enormous errors, and the more elaborate instruments stood in need of thorough reform in every detail. Colonel Strange's great reform has been effected by

three measures, the abolition of patterns, the abolition of tenders, and a system of thorough inspection. He found that the pattern system was merely an encouragement to the trade to stand still, and the result was the perpetuation of forms which have long been superseded by the advance of knowledge. The system of employing makers of repute was substituted for that of tenders, and all instruments were subjected to rigorous inspection, and to actual trial before payment was made. In 1872 there were 18,000 instruments inspected, of about 150 different kinds. But the crowning glory of Colonel Strange's labours was the completion of the great theodolite.

The useful career of this indefatigable public servant and most distinguished man of science, was prematurely brought to a close on the 9th of last March.

Reviews.

—:o:—

A LADY PIONEER IN THE EASTERN HIMALAYA.*

ANYTHING that enables us to form a more clear and definite idea of the beauties and glories of the Himálaya, any narrative that increases our knowledge of the great natural barrier between Tibet and India, is always valuable. Works of this kind are specially welcome now, when the thoughts of administrators are turned to the best means of opening friendly and unfettered communication between the lofty table land, and the rich, tropical plains of India.

The plateau of Tibet is in rear of the great rampart of the Himálaya, which overhangs the valley of the Ganges. Tibet yields inexhaustible supplies of wool, hides, salt, musk, gold and silver; in return for which the Tibetans are in need of tea, tobacco, cotton cloths, and manufactures of all kinds. Yet there is an impassable barrier fixed by the obstructive policy of man, which is more difficult to surmount even than the mighty Himálayan ridges. All knowledge that can be added to our present stock will tend to break down this barrier; and those who supply it are each, in their own way, and to the extent of their abilities, doing a useful public service. From this point of view, the Lady Pioneer in the Himálaya has been a most helpful assistant in a great work. Since the publication of Dr. Hooker's journal, no book has so well and so graphically described those glorious Indian Alps.

The barrier fixed by nature between India and Tibet is indeed imposing. The mountains rise up from the burning plains of Bengal to the regions of eternal snow, like a solid wall, surmounted by towering peaks, which are the loftiest in the world. From the culminating ridge, the slopes, deeply furrowed into alternate ravines and hills, gradually sink into the valleys of the Ganges and Brahmaputra, the distance from the peaks, 28 to 29,000 feet high, to the plains averaging about 90 miles. It is to this wondrous region, in which nature has worked on the grandest scale, that the Lady Pioneer introduces us through her admirable descriptive narrative, and also through the beautiful coloured illustrations with which her book is adorned. In the account of her first preliminary journey she takes her readers across the Tísta into Bhutan. In her second and principal expedition she started from Darjíling, and, with her husband and a friend, travelled along the Singalilah range, which divides the basins of the Tísta and the Tambur, and forms the boundary between Sikkim and Nepal, until the party had ascended beyond the line of perpetual snow at 17,000 feet, to the very foot of the Jurnú Peak, between Kanchan-gunga and Mount Everest.

Her descriptions of scenery are vivid and lifelike, and she keeps up an unflagging interest in her story by her pleasant and well-told narrative of the various stirring incidents of the expedition. The journey was full of adventures, some of which entailed perils of no common kind, and called forth no ordinary powers of endurance. Yet all such drawbacks were evidently as nothing, when weighed against the intense pleasure derived by this courageous lady from the contemplation of the Himálayan glories.

"How delightful," she exclaims, "to climb these wild gorges in the clear morning light and watch the crystal beads, which imprison each twig and lichen stem, melt into shining drops as the sun grows warm! And the world looks so old, so very old here. Time has made such wrinkles in its dear old face. Everything bears marks of a hoary antiquity, and one seems to have been suddenly carried back into some earlier period of history. In these scarce terrestrial altitudes, far removed from the strife of men, we seem to breathe an atmosphere not of earth. We are above the region where men are born and live, and suffer, and agonise, and die; above principalities and powers and all things temporal. It is within the portals of these sublime mountains that one realises of a truth, and in a way unintelligible to those who have not lived amongst them, the Unseen and Infinite. He exists in their profound silence, and in the antique mystery of all around. . . . A perpetual wonder to me are these stupendous hills, and I often feel embued with a wild eagle spirit, and long to soar until I reach their very summits. The sea is a great teacher, and the sky a volume in which God's own language is written in stars; but these mountains, no less types of solidity and endurance beyond all Time, impress me with a sense of majesty and divinity above all else."

Deep and penetrating as is her appreciation of nature, and excellent as are her descriptions of the magnificent scenery, the portions of her narrative which tell us of the mountaineers who were her fellow travellers, of the Lepchas and Bhutias, are not less interesting. We have read several ethnological and anthropological reports upon the hill tribes of the Eastern Himálaya, but never until now have we learnt to know and to understand these people. To this lady they are not units of a tribe, of a branch of the Turanian stock, but brothers and sisters.

Lattoo, the pretty Bhutia girl, was to her a companion, in whose welfare she took a warm and kindly interest. A sisterly regard for the poor mountain girl grew up in the heart of the English lady, who sincerely mourned her early death.

"In my affection for her," she says, "all social inequalities had been forgotten, and I felt that her nature and mine, though of different clime and nation, and kindred and tongue, were yet one; and a chill went through my heart as I pictured to myself the little hut—the sunshine of her presence."

It is pleasant, too, to read of her intercourse with the Bhutia woman who accompanied the expedition;

* *The Indian Alps, and how we crossed them;* being a Narrative of Two Years' Residence in the Eastern Himálaya, and Two Months' Tour into the Interior. By a Lady Pioneer, illustrated by herself. Longmans, 1876.

of her kindly interest in all the mountaineers who formed the party, and of their affection for her, almost fighting for the honour of carrying her things, and attending her on her sketching excursions. This lady gives us a truer and better lesson in ethnology than all the anthropologists who ever disputed over skulls or classified races.

On her return to Darjíling, the Lady Pioneer visited the Buddhist Monastery of Pemionchi, in Sikkim, and it is very interesting to read the impression she received from hearing the religious service of the monks.

"Strange as were the surroundings of these Pagans, and grim as were their symbols, how can I find language to express the majesty and grandeur of their worship, which impressed me more deeply than anything I have ever seen or heard, and in which I realised faintly a sort of abstract idea of what the worship of the All-Supreme by poor feeble human lips should be. It filled me with wonder and admiration; and the chanting of their service is a thing never to be forgotten while memory lasts. The whole, which was a kind of Litany, was sung in the very deepest monotone, and preserved with marvellous precision; the voices musical, and harmonising perfectly. Every now and then they ceased chanting for an instant, after which, the chief Lamas beginning some fresh theme in a higher key, which sounded like a wild burst of rhapsody, they all took up the strain, and sank once more to the same deep note. Although this solemn Litany was in a language with which we were wholly unfamiliar, it scarcely seemed to be in an unknown tongue, for there was a descriptiveness in the rendering of the whole, which in a great measure enabled us to follow its meaning. Now their voices blending in deep and solemn utterance, they seemed to be mourning their sins and shortcomings in profoundest humiliation and self-abasement, now bursting forth in joyous cadence, they seem at last—having withstood the temptations to which they had been exposed in successive stages of existence—to see before them the prospect of Nirvana. There was also an earnestness and simplicity about their worship that left no room for doubt as to its sincerity."

But whether enjoying the glorious scenery of the mountains, or in friendly converse with her Lepcha and Bhutia friends, or listening to the solemn services of the Buddhist monks, the Lady Pioneer is always interesting and often instructive. The pleasure of reading her narrative never flags, and the reader will come to the last page with a feeling of regret.

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COLONEL THULLIER'S MANUAL OF SURVEYING FOR INDIA.*

THE *Manual of Surveying for India* was first published by Colonel Thuillier and Lieutentant-Colonel Smyth at Calcutta in 1851, and a second edition appeared in 1855. The demand for the work has since steadily increased, and now Colonel Thuillier has found time, amidst his absorbing duties as Surveyor-General of India, to revise and prepare for the press a greatly improved third edition.

Like the former editions, the present manual is divided into five parts: on the Mensuration of Planes, on Surveying Instruments, on Surveying, on Route Surveying and Military Reconnaissances, and on Practical Astronomy and its Application to Surveying. Some of the sections, in the third part especially, are interesting, not only to the surveyor, but to all who desire to have a thorough knowledge of the Indian land revenue systems, of which surveys are the basis. In these sections will be found clear explanations of the method of preparing and surveying village circuits, of the mode of demarcating and of keeping native records, and of the system of collecting and utilising statistical information. There is also an interesting chapter on the orthography of native names, with rules for transliteration.

In the Appendix are given the Instructions for Topographical Surveying, which were drawn up by Sir Andrew Waugh in 1853; a number of useful tables, and lists of latitudes and longitudes of places in India.

This new edition is, of course, indispensable for all members of the Survey Department, and for all officers who, like the forest conservators, include demarcation among their duties. The work will also be most useful to all who have opportunities of travelling in parts of the East which have not yet been fully explored, and to every administrator who desires to have a thorough knowledge of the systems of land survey and assessment.

But the great value of the *Manual* lies in the sound instruction it supplies to surveyors. For the last quarter of a century it has been the means of inculcating strict professional principles and rigorous procedure in the various departments of the public service, and especially in the revenue settlement department. In its present form its value is considerably increased, and, in the laborious preparation of the new edition, Colonel Thuillier has done an important public service.

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MANDALAY TO MOMIEN, A NARRATIVE OF TWO EXPEDITIONS TO WESTERN CHINA OF 1868 AND 1875. By *J. Anderson, M.D.* (Macmillan, 1876.)

DR. ANDERSON has done well in making the narrative of his expedition in 1868 accessible to the public, and he has added to it a briefer but very interesting account of the proceedings of Colonel Horace Brown's Mission in 1875, to which he was also attached. The volume is illustrated by capital sketches of scenery, and three maps. In our number of *Ocean Highways* for October 1872 (p. 207), there was a full review of Dr. Anderson's Report, by Sir Arthur Phayre, and we are glad now to repeat its last paragraph: "In concluding our notice of Dr. Anderson's report we can heartily recommend it as an interesting book of travels, and as containing a rich mine of information on every subject connected with Upper Burmah and the adjoining territory of Yunnan."

The additional chapters relate the proceedings of the mission of 1875, including the murder of Mr. Margary, and the journey of Elias to the Shueli Valley.

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EXPLORATIONS IN AUSTRALIA. By *John Forrest, F.R.G.S.* London (Sampson Low and Co., 1875.)

MR. FORREST has earned a name which will rank among the foremost—if not as the very first—of those of Australian explorers. He has performed three journeys across the western half of Australia, and each has been a greater achievement than the preceding one. His first was undertaken when he was a subordinate officer in the Survey Department, at the request of the Government of West Australia, who were endeavouring to trace out the fate of the unfortunate traveller, Leichardt. In this journey, which extended in a north-easterly direction from Perth, on the west coast, to a point situated in about 122° 50′ E., he was absent 113 days, and traversed over 2000 miles. His second journey in 1870, lay along the southern shore of West Australia, from Perth to Adelaide, a route which coincided in the main with that taken by Mr. Eyre in his memorable circuit of the Great Bight in 1841. In this expedition he was rewarded by the discovery of some beautifully grassed and most promising country in the immediate vicinity of Port Eucla, one of the very few anchorages along that rock-bound coast. When the almost uniform desolation of the region between West and South Australia is taken into account, the importance of this discovery will be fully appreciated. The last and greatest of Mr. Forrest's

* *A Manual of Surveying for India*, detailing the Mode of Operations on the Trigonometrical, Topographical, and Revenue Surveys of India; compiled by Colonel H. L. Thuillier, C.S.I., &c., and Lieutenant-Colonel Smyth. (Third edition). Calcutta, Thacker. 1875.

exploits was undertaken, apparently, at his own suggestion, and it consisted in traversing the entire distance from Perth to the Peake Station of the Overland Telegraph, a feat which surpasses even Colonel Warburton's great journey to the northward. Mr. Forrest appears to have suffered greatly from want of water, and the use of horses instead of camels aggravated this fearful discomfort. His narrative is, however, told with such simplicity, and he makes so light of his many privations that the reader's sympathy and admiration cannot but be won. It is a triumph for Mr. Forrest that his second journey has already led to the adoption of measures for uniting West and South Australia by a telegraphic line, and so linking the former with the telegraphic network of the globe. His third journey, has resulted in the discovery that the whole of the country, from the settled districts near Champion Bay to the head of the Murchison, are admirably adapted for settlers. His various expeditions, in all of which, we should mention, he has had the advantage of the co-operation of his brother, Mr. A. Forrest, have thus already borne good fruit, and this plain and unassuming record of his doings cannot fail to interest those who have watched the progress of Australian exploration as well as those who admire a tale of endurance and energy.

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TO THE VICTORIA FALLS OF THE ZAMBESI. Translated from the German of Edward Mohr by *N. D'Anvers*. London (Sampson Low, and Co.), 1876.

WE are glad to welcome a translation of Herr Mohr's popularly written book. It is a pity that the German work (the appearance of which we noticed in our number for July last), should have been delayed until upwards of three years after the author's return, but this is partly compensated for by the punctuality with which a very fairly accurate English version has been put before us. Herr Mohr, a traveller of no mean experience, formed the project of joining Adolf Hübner, the mining engineer, who was setting out for the Matebele country, with the intention of verifying the discoveries of gold made by Karl Mauch. Mohr's object was partly geography and partly sport. The geographical results comprise a route-survey from Port Natal to the Victoria Falls on the Zambesi, or, speaking roughly, through 12 degrees of latitude, 113 observations for latitude, and 14 for longitude, by means of lunar distances, besides magnetic and height observations. These are not given in the English edition; compilers of future maps will do well, therefore, to consult Herr Mohr's original work. All the numerous incidents of sport and travel are, however, graphically reproduced in the volume now before us, which affords a most vivid and interesting picture of a hunter's life in Southern Africa.

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PHYSICAL GEOGRAPHY; OR, THE TERRAQUEOUS GLOBE AND ITS PHENOMENA. By *W. Desborough Cooley*. (Dulau and Co., 1876.)

MR. DESBOROUGH COOLEY has published a learned and valuable book on terrestrial physics, which he is pleased to call *Physical Geography*. He tells us that physical geography "is the department of science which embraces the course of physics reigning on the earth's surface over land, sea, and air, and of which, as it depends to some extent on the features of that surface, geography is a function." The definition of Sir John Herschel, which Mr. Cooley quotes in his preface, is, however, far preferable. "Physical geography is the description of the actual state of the earth's surface in its three great divisions—land, sea, and air—as prepared for the habitation of organic beings, and as exhibiting the play of all those complex agencies on which depend the distribution of temperature and moisture, aerial and oceanic currents, and those conditions which, under the general title of climate, determine the abundance and limits of vegetable and animal forms." Mr. Cooley is incorrect in saying that Sir Roderick Murchison's definition of physical geography differed from that of Sir John Herschel. Both held it to be a description of the actual state of the earth's surface.

But Mr. Desborough Cooley's work is not physical geography. It is a treatise on physics. It is not the study of geography by the light of the principles of physical science, but the partial use of geography in illustration of a treatise on pure physics. It is most important that the distinction should be enforced and understood, for the confusion of ideas in mixing up the study of physics and of geology with physical geography, has caused, and is causing, much mischief.

As a treatise on terrestrial physics Mr. Cooley's work is very valuable; and the student of geography will derive great benefit from its careful study. He will learn the principles on which his science is based, and without a thorough and practical knowledge of those principles he can make no advance in the study of geography. As a carefully and, at the same time, an agreeably written text-book on terrestrial physics, we can strongly recommend Mr. Cooley's volume.

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ELEMENTARY COURSE IN GEOGRAPHY, designed for Primary and Intermediate Grades, and as a Complete Shorter Course. By *William Swinton*. (New York and Chicago.)

A COMPLETE COURSE OF GEOGRAPHY, PHYSICAL, INDUSTRIAL, AND POLITICAL, with a Special Geography for each State. (New York and Chicago, 1875.)

THESE text-books of geography appear to us to have been prepared on a very excellent plan. Instead of enunciating a principle in abstract terms, a series of questions leading up to the principle is addressed to the perceptive faculty of the learner. It is, in fact, an inductive method. The questions commence with the home of the scholar, and gradually go further afield. The nature of a plan or map is shown by a picture, and then a ground plan of the schoolroom; then of the school grounds, and so the horizon of the learner is gradually enlarged. Each lesson is made interesting by the narrative form adopted, and by numerous illustrations. The physical features of each country, the products, the manufactures, the occupations and character of the people, are briefly described. The English are described "as a bluff, hearty people, fond of roast beef and fair play, but obstinate, and a little conceited." The Scotch "as industrious, intelligent, and thrifty, but thrifty sometimes to meanness." The Irish, "as quick-witted and impulsive, though somewhat improvident." In the complete course, by far the larger portion is devoted to the United States, special attention being bestowed upon industrial and commercial geography. The plan upon which these courses of geography is written might usefully be imitated in this country; as well as the excellent illustrations.

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RUSSICHE REVUE, Vol. IV. (12 parts). St. Petersburg, 1875. London (Trübner).

THIS volume of the *Russian Review* contains many valuable papers on the history, the geography, and the statistics of Russia, and as information on these points is not always to be procured readily, except from works written in Russian, the publisher should be supported, in order to enable him to continue its publication. Amongst the papers of interest to geographers, we may mention: an article on the Hissar Expedition; a paper on the Meteorology of Russia, by Voyeikof; an account of the work done at the Physical Observatory, by Dr. Wild; a report on the progress of geological surveys in

Russia by Professor Barbot de Marny, besides many statistical papers of great interest.

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Murray's Handbook for Russia.

This third revised edition, upon which Mr. Michell has bestowed all his Russian knowledge and experience, may be less commodious for travellers, being more than double the size of the preceding edition; but its bulkiness is well compensated for by the great abundance of fresh routes and particulars, and by the new maps and plans which render it thoroughly serviceable. The historical notices on Russia proper and on all her principalities, are highly commendable, and it is manifest from this work, as from Mr. Michell's numerous official reports to the Foreign Office, presented to Parliament, that his knowledge of Russia, social, material, and moral, is of the very first order. So carefully, too, has he elaborated this third edition of the Russian handbook, that no iota of essential information seems to be missing. From his official position at the Embassy, and as British Consul at St. Petersburg, in which he rendered services to his country, for which he has recently received the Order of the Bath, he has been enabled to facilitate the travels of Englishmen in Russia, through the information he conveys, as no ordinary Russian scholar or private individual acquainted with Russia could have done. There is, indeed, no other living authority on Russia, in all her aspects, so qualified to guide and advise his countrymen with respect to that country as Mr. Michell, and now that he has retired from the Government service, his travelling countrymen may alone reap the full benefit of his knowledge. The newest feature in the present edition, which fortunately comes out at a season when plans of summer excursions are already being traced out, are the routes through Siberia and into Central Asia, even to Samarkand, through the Caucasus, and through Finland, of which, by the way, Mr. Michell appears to be quite enamoured, on account of the salubrity of the climate, the picturesqueness of the scenery, and, perhaps, above all, on account of the fishing to be obtained there.

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Bulletin of the United States Geological and Geographical Survey of the Territories. Bulletin, No. 5. Washington (Department of the Interior), 1876.

The new bulletin issued by Dr. Hadyen opens with a most interesting review of the Fossil Flora of North America, by L. Lesquereux. The remaining papers are, notes on the geology of some localities near Cañon City, Fremont County, Colorado; an account of the *Zapus Hudsonius* or Canada rat; on the breeding habits, nest and eggs of the white-tailed ptarmigan; list of Hemiptara of the region west of the Mississipi River; on some new species of fossil plants of the lignitic and cretaceous formations of the Dakota group; notes on the lignitic group of Eastern Colorado and Wyoming, and on the supposed ancient outlet of Great Salt Lake. The author of the last paper, Mr. A. S. Packard, states that he has been informed by General Connor, late of the United States Army, Mr. Clayton, mining engineer, Salt Lake City, and others, that a river bed, which he inclines to believe was once an outlet of the lake, extends from a point about 100 feet above the present level of the lake away to the south, to the Sevier Lake Valley, and that it has been traced by railroad surveyors for over 100 miles. Beyond the Sevier Lake Valley its course is purely conjectural; but the indications are that the river poured into the Colorado River. It is possible that it may have had an independent outlet into the Dry Lake Basin, from whence it may have emptied into the head of the Gulf of California or turned westward and sought the Pacific Ocean at or somewhere near the bay of San Diego.

Cartography.

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The Khandesh Atlas.—The *Revenue Survey and Assessment Atlas of the Khandesh Collectorate*, printed under the auspices of the Bombay Survey Department in 1875, is a good specimen of the useful cartographic illustration of statistics.

The district of Khandesh, in the northern division of the Bombay Presidency, covers 10,539 geographical miles, and has a population of 1,028,642 inhabitants. It yields a gross revenue of 501,360*l*. Khandesh is bounded on the north by the Satpura Hills, on the east by Berar, on the south by the Satmalla and Ajunta Hills, and on the west by Baroda and the district of Nassick. It is divided into two unequal parts by the River Tapti, the larger of which, to the south, is drained by the Girnà, while northwards, beyond the rich, alluvial plain of the Tapti, the land rises to the Satpura Hills. Of the population, 92 per cent. are Hindus and 8 per cent. Muhammadans. The principal agricultural produce consists of cereals, pulses, and cotton. The Survey settlement was introduced between 1853 and 1869, for a fixed term of thirty years. There are nineteen towns in Khandesh of which the population exceeds 5000, in eighteen of which municipalities have been established, with revenues derived from octroi duties and house tax. There are 232 schools, with 13,748 pupils, or 1 per cent. of the whole population.

The atlas consists of a general map of Khandesh, and special maps of the sixteen *talukas* into which the collectorate is divided. The general map is on a scale of 8 miles to an inch, and is accompanied by statistical tables showing the amount of cultivated land, irrigated or unirrigated; the details of assessment, of cultivation, of population, and a return of houses, wells, live stock, and farming implements. The *taluka* maps are on a scale of 2 miles to an inch, and show the boundaries of villages, distinguishing between government and alienated by colour. Each *taluka* map is also illustrated by statistical tables.

An atlas, like that of Khandesh, for all other collectorates, will furnish admirable data for the study of the progress and condition of India, and will supply the means of producing most useful general maps prepared on the same plan, for the cartographic illustration of vital and agricultural statistics. We trust, therefore, that it will not be long before this well-planned and very creditably-executed atlas is followed by others, prepared on the same principle and in the same style.

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Dr. H. Kiepert's series of Physical Wall Maps* has been completed by the publication of a Map of the Pacific, which differs in its treatment somewhat from the other maps belonging to the same series. The features of the surrounding continents, as far as they are drained into the Pacific, are fully delineated; cold and warm ocean currents are shown; low, coral islands are distinguished in a clear manner, and the political boundaries are given. We have on former occasions noticed the other maps belonging to this series. The high reputation of their author warrants their correctness, and of their practical value for school use there can be no doubt.

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Both the Colonies of British Guiana and Natal have recently published maps of the territories subject to their sway, and though neither of these maps add very materially to our geographical knowledge, as far as the larger features of Africa or South America are con-

* H. Kiepert's *Physikalische Schul-Wandkarten*, No. 8: Der grosse Ocean. 8 sheets. Berlin (Reimer), 1876. Size of map, 70 by 64 inches.

cerned, they both contain many details not to be found on any previous map. The map of British Guiana* is based principally upon the surveys executed by Sir Robert H. Schomburgk, from 1835 to 1839, and under Her Majesty's Commission, from 1841 to 1844. The information thus derived has been revised and corrected to the present time by Mr. Cathcart Chalmers, the Crown Surveyor of the Colony; by Mr. J. G. Sawkins, the Director of the Geological Survey of British Guiana, and by Mr. Ch. B. Brown; and the map has been engraved under the superintendence of Mr. William Walker. As far as concerns the interior of the country there is no advance upon Schomburgk's map, but much additional information has been inserted along the coast, and with an inquiring geologist like Mr. Sawkins that about in Guiana, we feel sure at an early date we shall learn more about the interior of the country. This reminds us of the fact that the boundaries of the colony are disputed by Venezuela and Brazil. From a note placed under the title, we learn that the boundaries laid down upon the map are those adopted by Sir Robert Schomburgk. If the claims of the two countries named were to be conceded, British Guiana would be shorn of more than half her present proportions, for, between them, they claim the whole of the territory to the west of the Marsoca and the Essequibo. The Venezuelans, at all events, do not appear to us to possess a shadow of right with respect to the vast territory claimed by them, whilst the Brazilian claim might possibly be admitted, to a certain extent. Surely it is time these disputes were settled. There is nothing worse than boundary disputes, and their adjustment is rendered more difficult in proportion as settlements increase. At present there are no settlements on the territories in dispute, or at most unimportant ones, and an amicable settlement of these boundary questions could be easily arrived at. We trust that, should the Foreign Office take this matter in hand, they will bear in mind the fiasco they made in connection with the San Juan and Delagoa Bay disputes, and condescend to seek the advice of persons more competent in such matters than themselves.†

The MAP of NATAL‡ exhibits an advance upon Captain Grantham's map, published by the Topographical Department in 1863, but might have been rendered more satisfactory if its author had drawn more largely upon his predecessor for information. We miss the names of many rivers, as well as altitudes. In other respects, and particularly as regards the demarcation of the various farmsteads and locations, the map is exceedingly valuable, and can no doubt be trusted, for it is based upon the plans in the Colonial Surveyor General's office. It has been lithographed in a superior style by Mr. Stanford.

We have received a beautifully engraved MAP OF A PORTION OF GALILEE, § comprising the country between lat. 32° 40′ and 33° 5′ N., and based upon the surveys made in 1870, by Captains Mieulet and Derrien, of the French staff. It forms a continuation of the Libanon Survey, already published, and will remain the standard map of that part of Palestine until the surveys carried on by the Palestine Exploration Fund shall be published. The hills are delineated with great care, and the ancient names have been inserted wherever identified.

* Map of British Guiana, &c., engraved under the superintendence of William Walker, 1875. Scale 1:440,000. London (Stanford).

† At the moment of going to press we learn from the *European Mail* that negotiations for a settlement of the boundary of British Guiana have commenced. Venezuela, it is stated, will cede the whole of the territory as far as the mouth of the Orinoco, and it is proposed to establish there a Chinese colony. In return for this cession the British Government would invest 1,000,000*l.* in Venezuelan bonds.

‡ Map of the Colony of Natal, by A. Mair, Land Surveyor, Natal, 1875. Scale 1:253,464. London (Stanford).

§ Levés en Galilée faisant suite à la carte du Liban de l'Etat-Major français, exécutés en 1870, par MM. Mieulet et Derrien. Scale 1:100,000. Paris (Depôt de la Guerre).

Log Book.

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Arrival of Lieutenant Cameron.—The great African explorer arrived at Liverpool on Sunday, the 2nd of April, where he received a hearty welcome. The meeting of the Royal Geographical Society, to hear the account of his discoveries and to welcome him home, will take place in St. James's Hall, on Tuesday the 11th of April, when the chair will probably be taken by H.R.H. the Duke of Edinburgh, the Honorary President of the Society. We hear that the King of the Belgians has invited Sir Henry Rawlinson and Lieutenant Cameron to Lacken, being desirous of making the personal acquaintance of the great traveller, and that Her Majesty has also signified her intention of having an interview with him on her return from Germany.

The Tides up Smith Sound.—The physical results of the 'Polaris' expedition will fill a quarto volume of about 800 pages, but as there is great delay in its publication at Washington, Dr. Bessels has brought out, in anticipation, a map exhibiting the approximate cotidal lines of the North Atlantic and North Pacific Oceans, and of the Arctic Seas.

The following results were obtained by Dr. Bessels, from several hundred tidal observations, taken at Polaris Bay, in latitude 81° 36′ 5″ N:—

	H.M.
Mean establishment of high water	12.14
Do. do. low water	18.23
Mean duration of the fall of the tides	6.9
do. rise do.	6.15
	FEET.
Mean height of high water	6.39
do. do. low water	2.53
do. rise and fall of the tide	3.86
do. high water springs	7.24
do. low water	1.84
Spring tide range	5.40
Mean high water neaps	5.39
do. low water neaps	3.40
Neap tide range	1 99
Highest high water observed	9.17
Lowest do. do.	3.67
Extreme fluctuation of high water level	5.50
Highest low water observed	5.38
Lowest do. do.	—
Extreme fluctuation of low water level	5.38

Cape Fraser, in Smith Sound, is about the position where the tide from Baffin's Bay meets that from the north.

Lieutenant Weyprecht on Arctic Investigation.—At the forty-eighth meeting of German naturalists and physicists at Gratz, on the 18th of September, 1875, and again at Vienna on the 13th of March, 1876, Lieutenant Weyprecht read a paper on the fundamental principles of Arctic investigation. His remarks on the comparatively small results of English expeditions, with reference to the number that have been despatched, are based on a total misconception. By far the greater number of these expeditions were despatched to search for Sir John Franklin, and their objects were distinctly not scientific. Excluding Franklin's, there have been five scientific Arctic expeditions sent in the direction referred to by Lieutenant Weyprecht, and not, as he says, twenty-five. This alters the whole aspect of the question.

What is little for twenty-five expeditions to have done is a great deal to have been achieved by five, the last of which (previous to the departure of the 'Alert' and the 'Discovery'), was despatched more than forty years ago.

Lieutenant Weyprecht very truly remarks that the Polar regions are the most important portions of our globe for the study of the natural sciences. The extreme conditions under which the forces of nature act in the vicinity of the Pole produce phenomena which offer us the best means of investigating the nature of the forces themselves. There is hardly a branch of natural science which is not deeply interested in Polar research. In the unknown region lie the keys to the true theory of magnetism—to that riddle in physics, the cause and nature of the aurora; to the question whether the ice of the Polar regions is not the regulator of our climatic conditions. Here, too, the sciences of astronomy and geodesy, of geology, zoology, and botany will be materially advanced. We now know just enough of nature's doings in high northern and southern latitudes to show us how important a thorough scientific investigation of these regions is to natural philosophy in all its branches.

Lieutenant Weyprecht complains of the prominence that has been given to geographical discovery in Arctic work, and that the conquest of physical difficulties has usurped the place of real scientific labour. As regards English scientific Arctic expeditions this complaint is groundless. Geographical discovery properly takes the first place, because it is by far the most important, and the conquest of physical difficulties is the means by which it is achieved. But other branches of science have received their due share of attention, and especially in the expedition which is now absent.

The main object of the paper is to urge the importance of synchronous observations for comparison at various points. His proposal, with this object, is that stations should be established, for at least a year, at Novaya Zemlya, Spitzbergen, East or West Greenland, North America east of Behring's Strait, and in Siberia, at the mouth of the Lena, to record a series of simultaneous observations in physics and meteorology. The expenses might, he suggests, be divided among several nations. We trust that Lieutenant Weyprecht will be successful in his endeavours to secure the establishment of such a chain of scientific stations round the frigid zone.

A Spanish Geographical Society.—We welcome the intelligence that a Geographical Society has been founded in Madrid, by Don J. Maldonado (Director of Public Instruction), Don Francisco Coello, and Don Eduardo Saavedra. The organising committee, consisting of fifteen members, is presided over by Don Fermin Cavallero. The regulations have been discussed, and the Society was constitued during the third week of March, when the president, vice-presidents, secretaries, and twenty-six other members of the Council were appointed. One of the leading members is Don Antonio Aguilar, Director of the Astronomical Observatory, and Perpetual Secretary of the Academy of Sciences at Madrid.

The country to which geography owed so much in the sixteenth century has produced geographers of distinction in modern times. First among them stand the honoured names of Madoz and Coello, both honorary corresponding members of the Royal Geographical Society of this country. Don Pascual Madoz is the well-known author of the great geographical dictionary of Spain, in sixteen quarto volumes. Colonel Don Francisco Coello was the Director of the Trigonometrical Survey of Spain, the preliminary triangulation of which was completed in 1855, by connection with the work of Biot and Arago, who measured an arc of the meridian between Dunkirk and Formentera. Señor Coello is the author of an atlas of Spain and its dependencies, in twenty-five sheets (*Atlas de España y sus Posesiones Ultramar.*) Under his auspices were prepared the physical and hydrographical memoirs on the basins of the Guadalquivir, the Ebro, the Douro, and the Tagus. That on the Ebro, by Don Pedro Antonio de Mesa, was specially noticed by Sir Roderick Murchison in his Anniversary Address of 1866. Señor Coello also brought out the admirable itinerary map of Spain in twenty sheets, on a scale of 1 : 500,000. The Hydrographic Department at Madrid has not been idle, and of late years many new charts have been produced, especially of the Philippines.

We have referred to the labours of Madoz, Coello, and Mesa, as a proof that Spain is rich in geographical talent, and that a Spanish Geographical Society will include among its members several geodesists and physicists of European reputation. We look forward, therefore, with well-founded hope to a useful career for the new society, and we trust that it will extend its operations to comparative geography, and to the reproduction of some of the inedited work of those great geographers of old, of whom the Spanish soil was so prolific. We heartily wish success and prosperity to the Spanish Geographical Society.

Geographical Work in Bolivia.—Commander Musters, R.N., now resident at Sucre (Chuquisaca), and Mr. Minchin, a civil engineer in the service of the Bolivian Government, are doing very valuable work in fixing the positions of important places, and correcting the geography of Bolivia. (See also our number for October 1874, p. 305).

A scale of fifteen inches to a degree has been selected for their maps, as being about the smallest on which the numerous *quebradas* or ravines can conveniently be shown. The first meridian is represented as passing through Sucre, the capital of Bolivia, the longitude of which has been carefully observed by Captain Musters and Mr. Minchin, by means of lunar distances, eclipses of Jupiter's satellites, and lunar occultations. The means of the results agree very closely, and give the position as 65° 17′ W. of Greenwich. Astronomical observations have been taken at many other towns, villages, and post houses. The latitudes are generally from meridian altitudes of α Crucis, β. Centauri, Arcturus, Vega, and a few other stars, and, when suitable, of the sun or moon. The longitudes are calculated from chronometer time sights, checked at the more distant points by independent lunar observations. The windings of the roads are laid down from compass bearings, and the distances by careful estimation, checked by cross bearings. Observations of heights are made with aneroid and boiling-point thermometers by Casella. The best existing map of Bolivia is that of Colonel

Ordasa, but it is very erroneous, and the work now being done by Mr. Minchin will be of real geographical value.

New General Charts of Indian Coasts.—A series of general charts of the Indian coasts, on the scale of 3 inches to a degree, is in course of preparation. Four of these sheets will embrace the whole of the coast line from Karachi to Tenasserim, and will supply a want long felt for purposes of navigation. The first sheet, which extends from Karachi to Vingorla, is in process of engraving. It has been compiled from the Admiralty charts and the Great Trigonometrical Survey sheets, and has been adapted to the most recent astronomical determinations of the positions of the survey. The coast of Kattywar has been drawn from the manuscript chart of the coast found at Bombay by Captain Taylor, which has not hitherto been published. The latest information relating to lights, buoys, &c., has been added. The second sheet of the series, embracing the southern half of India and the islands of Ceylon, with the Laccadives and Maldives, is on its way to this country, and the whole series is to be produced with as little delay as practicable.

Italian Expedition to Africa.—The approaching Italian Expedition to Africa will be under the leadership of the Marquis Antinori. It will start from Berbera, on the Somauli coast, in company with a caravan strong enough to resist the attacks of any hostile tribes, and proceed to Ankober, capital of the Shoa kingdom. Here the expedition will be among friends, as two years ago the King of Shoa sent an embassy with presents to King Victor Emanuel, and for no less than thirty years there has been a Piedmontese missionary resident there, and engaged in instructing the negroes. From hence the caravan will make for Habbo, and then turn southward, in the direction of the Victoria Nyanza. The expedition will probably be absent four years, and cost 100,000 francs, but the subscriptions received already exceed this sum. A meeting of the Italian Geographical Society, at which Prince Humbert and the President of the Geneva Geographical Society (M. de Beaumont) were present, was held on the 7th March, under the presidency of Signor Correnti, to bid farewell to the Marquis Antinori, who was to have started on the 8th by the Rubattino Company's S.S. 'Arabia,' for Aden.

The Level of the Sea, by Dr. J. HANN (*Mittheilungen* Vienna Geographical Society).—In this paper Dr. J. Hann draws attention to certain irregularities in the level of the sea, or its local deviations from a true spheroid, of which no notice is taken in the principal works on physical geography. These deviations are caused by the attraction of land-masses, as well as by the varying depth of the ocean, and locally they are very considerable, exceeding probably 2000 or 3000 feet. Saigey, Stokes, Airy, Sabine, Fischer, Listing, and others have paid some attention to this subject, and careful pendulum observations would most readily lead to its elucidation. The pendulum, indeed, is the best instrument for measuring altitudes, if by altitude we understand the elevation above a regular spheroid, and not merely above the level of the sea.

Correspondence.

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THE BASINS OF THE CASPIAN AND THE ARAL.

To the Editor of the "GEOGRAPHICAL MAGAZINE."

SIR, — Major Wood's letters, which have appeared in the *Geographical Magazine*, on the basins of the Caspian and the Aral and the course of the Oxus are so interesting, that it must be a general wish that he should devote a special treatise to the subject, which is one of singular interest and importance. In the hope that he will do so, I venture to add my mite to his collection of facts.

In examining Abulghazi's history for an account of a struggle that took place between the Uzbegs of Khiva and the Ural Cossacks, I came upon a passage which I have since found was quoted by M. Jaubert, in his essay on the course of the Oxus, in one of the early numbers of the *Journal Asiatique*, but which has been singularly neglected by later writers. I quote from the recent edition by M. Desmaisons. "I was born," says Abulghazi, "in the country of Urgenj, in the year 1014 of the Hejira, in the year of the hare, when the sun was in the sign of the lion, on a Monday, at daybreak, the 15th of the first month Zebi (or July, 1605).

"Thirty years before my birth (*i.e.* about 1575), the Amu made itself a new channel from the place called Kara-Oéghur-Tukai below Khast Minaressi, and taking the direction of Tuk Kal'assi, fell into the sea of the Sir (*i.e.* of the Aral), and thus converted into a desert the neighbourhood of Urgenj.

"Nevertheless the poor folk of Urgenj continued to live there. In spring, the Khan and his troops went to the river bank and encamped in the place best adapted for agriculture, and returned to Urgenj after the harvest" (*op. cit.* 312).

The Urgenj of this passage is no doubt the Kunia Urgenj or Old Urgenj of the maps, the city which was captured after a very brave siege by the Mongols in 1221; and I have no doubt that at that time the Oxus flowed along the course which is marked on Colonel Walker's map as the Kunia Daria, and upon which is situated the fort of Baldumsus. It is remarkable that all the places in the Khanate of Khiva, situated to the north of this Kunia Daria, and between it and the Sea of Aral, except Kunia Urgenj and Baldumsus, bear quite modern names, nearly all of them derived from those of Uzbeg tribes; while of the old towns known to Abulghazi, Kirt or and Kat Buldumsag (*i.e.* the modern Baldumsus) were close to the Kunia Daria, and the rest of them, Khiva, Hazarasp, &c., were situated to the south of it. It is further clear, and this is an important element in Major Wood's argument, that the network of canals, for which the Khanate of Khiva is celebrated, must be of later date than this revolution in the course of the Oxus. This is patent on an examination of the map. Let us now turn to another passage of Abulghazi's. "At this time," he says, speaking of the reign of Sofian Khan (*i.e.* about 1520—1530), "all the way from Urgenj, as far as Abulkhan, was covered with settlements; for the Amú Daria, after having passed under the walls of Urgenj flowed as far as the eastern foot of the mountain (Abulkhan), whence it flowed for some distance to the south-west, then to the west again, until it fell into the Sea of Mazanderan at Oghurcha. The two banks of the river as far as Oghurcha, formed a series of cultivated lands, of vineyards, and orchards. In the spring, the inhabitants retired to the heights, and at the season when mosquitoes and gadflies abounded, they took their herds to the wells, which were found at one or two days' journey from the river, until the insects had disappeared. All this land was then well peopled and in a very flourishing condition.

"The two banks of the river were inhabited from Pishgah, as far as Kari Kilchit, by the Adagli Khizir, and from Kari Kilchit to the west of the mountain Abulkhan, by the Alis, and thence to its mouth by the Tivedjis. But we will not digress further from our subject" (*op. cit.* 221). How heartily we endorse the wish of M. Desmaisons, that he had digressed to his heart's content.

We here have defined for us the course the Oxus followed before its diversion in 1575, from the Caspian to the sea of Aral. The Abulkhan of this extract seems to refer to the plateau of Ust-Urt, bounded on the east by the cliff called the Chink, and not to the two knots of mountains known as the Great and Little Balkan. But where are Oghurcha and Kari Kilchit? I should be very grateful to Professor Vámbéry or Major Wood for any information about them, and still more for information about the Adagli Khizir, the Alis, and the Tivedjis. They were, undoubtedly, Turkoman tribes; the Tivedjis, we are told, numbered 5000 or 6000 families (*id.* 271). Pishgah, we are also told, was the name of some wells at a day's journey from Urgenj (*i.e.* Kunia Urgenj), *id.* 299.

In criticizing these extracts, I have taken it for granted that it was the Oxus itself, which, after passing by Urgenj, found its way to the Caspian, but there is a view which I once wrote in favour of, although I did not publish what I wrote, which I think deserves some notice, and upon which I should like to have Major Wood's opinion.

The earliest geographical work possessed by the Russians, is known as the Bolchomon Tchertejon. Karamsin tells us it was probably written during the reign of Feodor Ivanovitch, because in it are described the towns of Koursk, Voronetz, and Oskol, all built in his reign; while the towns founded by Godounoff, as Borissof, on the Northern Donetz, and Tsaref-Borissof, at the mouth of the Protva, do not appear in it. (See *History of Russia*, French translation, 10, 345-6.) This book was copied in 1627 at the Military Bureau, and some portions were extracted by Levchine, in his history of the Kirghiz Kazaks. Feodor Ivanovitch reigned from 1584 to 1598, so that we may date the book at the last decade of the sixteenth century. In it are some geographical data of very great value and interest, and I believe them to be most trustworthy. The following passage throws some light on our problem:—"*From the Blue Sea springs the River Arzass, which flows into the sea of Khvalymsk, and into the River Arzass falls, on the east, the River Amou Daria.*" The Blue Sea is the well-known Russian name for the Sea of Aral, and the Sea of Chivalyoses is the Caspian.

The first thing that strikes one in this extract is the fact that two rivers are mentioned, one connecting the Aral and the Caspian, the other the Amú Daria, flowing into it. This rather extraordinary position is confirmed by some very independent evidence. Thus, Jenkinson makes the *Amou Daria* flow into the Syr, and then into the Sea of Aral; while he makes a river which he calls the Ongouss fall into the Caspian. Jenkinson's map was published in London in 1562: there can be no doubt that his Ongouss is the same as the Arzass, of the Russian geographer. In the large map attached to Strahlenberg's account of the Russian Empire, published at the beginning of the last century, we have the Amú Daria dividing into two channels, one of which joins the Jaxartes, and another, to which the name of Chesel Daria is given, flows into the Caspian, but is joined by three branches to the Sea of Aral. The Chesel Daria is assuredly the same river as the Ongouss of Jenkinson, and the Arzass of the Russian geographer.

Again, in one of the maps attached to *Hanway's Travels*, published in 1754, the Amú Daria, which is figured in some detail, is made to flow into the Sea of Aral, while the dotted lines which represent, and are named on the map, "the ancient course of the River Oxus, from *the Aral to the Caspian Sea*," are shown to have beforked, one arm reaching the Aral, and the other the Caspian.

The south-western portion of the Sea of Aral is figured very differently on different maps. In some, as in Vámbéry's map, there is a long projection like a crooked finger, consisting of a swampy gulf, to which the name of Aibugen, or Indan, is given. In others, as in the one attached to Levchine's *History of the Kazaks*, there are two small detached lakes in the same situation to which the names of Rajah Sonat and Sarakul are given. They may represent winter and summer aspects of the same features. In all these maps there are signs that the Aral Sea has retrogressed very considerably at this point, and the swamp in the one case, and the lakes in the other, are the partially desiccated relics of a considerable gulf which formed the embouchure, there can be very little doubt, of the dried-up river whose bed is figured by Hanway, Mouravief, and others. This river follows for some distance the scarped cliff known as the Chink, which limits the plateau of Ust Urt on every side except the north-east, and then trends away to the south-west, to the great Gulf of Karabugas; another channel, passing between the hills of the Great and Little Balkan, is lost in the Gulf of Balkanskoi. The two gulfs are clearly the still remaining embouchures or outlets of these old channels. I call them channels, for it is clear from Mouravief's description that the remains are those of a string of dried-up lakes rather than a mere river: one of these, that of Shore Gol, still contains water, I believe. Now Mouravief's description of this string of lakes curiously confirms the geographers of the sixteenth century we have quoted. He says their environs for some distance round are excessively sterile and barren. This would apply exactly to dried-up pools of salt and brackish water, but would not distinguish the old bed of a fresh-water river like the present Amú Daria. It is clear that the water that flowed along this channel was the same kind of water that is found in the Aral and Caspian Seas, and in the myriads of pits in the Kirghiz Kazak desert; and from all the facts I have named, it is surely probable that this channel, or these channels, represent an ancient outflow of the Aral into the Caspian—represent, in fact, the Arzass, or Ongouss above named. There are two main channels, and, strangely enough, Olearius, who travelled on the Caspian, in 1637, says, "the Oxus and Orxanthes flow into the Caspian." It has been noticed that the water of the Aral Sea is much fresher than that of the Caspian, but the fact has never been reasonably explained.

If its waters were, however, constantly draining into the Caspian, while the drain was replenished by the fresh water of the Amú Daria and the Syr, we should expect to find its water much fresher than that of the Caspian.

These facts justify a suspicion that the Amú Daria or present Oxus never flowed across the Southern Karakum desert into the Caspian, that the river mentioned by mediæval writers as doing so, was a strait or channel of salt water connecting the Aral and the Caspian, and that the Aral and Caspian belong to one system, as the Victoria and Albert Nyanza do, the one having been partially fed by the overflow of the other. I should feel very grateful for Major Wood's opinion of this view, and still more for any facts which would enable us to trace more clearly the history of the Turkoman tribes before the great Uzbeg invasion.

Yours, &c.,
HENRY H. HOWORTH.

DERBY HOUSE, ECCLES,
February 16th, 1876.

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M.M. MARCHE AND COMPIEGNE ON THE UPPER OGOWAI.

To the Editor of the "GEOGRAPHICAL MAGAZINE."

SIR,—M. de Compiègne has construed my remarks on the shooting of natives, contained in the letter which you did me the honour of inserting in the *Geographical Magazine* for February, into a reproach of the conduct

of himself and M. Marche; such was not my intention, which was simply to point out, in the interest of future travellers, the desirability of avoiding bloodshed in savage and unexplored countries.

The difficulties experienced by Dr. Oskar Lenz in the Oséyba country, in consequence of the slaughter of some of that tribe by the French travellers, prove that I was right in writing as I did, and if any further justification of my words be needed, it will be found in the letter of M. Marche to the Marquis de Compiègne, quoted by the latter in the *Explorateur* of February 10th, a portion of which I venture to reproduce here:—

"Le Docteur Lenz est parti trois fois de Lopé pour essayer de franchir le pays des Osyéba. Chaque fois il avait envoyé aux Osyéba de nombreux présents, et, chaque fois, ils les lui ont renvoyés, disant *que pour chacun des hommes que nous leurs avions tués ils voulaient le sang d'un blanc.* Tous les hommes de M. Lenz l'ont maintenant abandonné; il reste à Lopé, seul, au milieu des Okanda. . . . De tous côtés il me revient que les Osyéba ont juré de tirer vengeance des leurs. . . . . Comme vous le voyez, cher ami, c'est la guerre! . . . . A la grâce de Dieu!"

The italics are not mine. The same number of the *Explorateur*, from which I have quoted, contains a statement by M. Savorgnan de Brazza, that Dr. Lenz was detained prisoner by the Okanda and Osyéba: later information would appear to contradict this report, but it is by no means impossible that the incensed savages might hold the German explorer as a hostage, in which case M. de Brazza would encounter a most serious complication at the very outset of his interesting journey into the unknown regions of Equatorial Africa.

Any one who will take the trouble of referring to M. de Compiègne's second volume, pp. 186-7, will find that some, at least, of the Osyéba were not slain in self-defence, but were attacked, and shot down when in full retreat.

No one who has resided long in Africa ignores the fact of its being sometimes necessary to use force to defend one's own life; and I am neither forgetful of, or ungrateful for, the assistance rendered to me by the French travellers, under the circumstances alluded to by M. de Compiègne. I trust, also, that I appreciate, at their just value, *all* the favours conferred on me by that gentleman, which it is needless to recapitulate here. I did not seek any further acknowledgment of my good offices and hospitality, than is to be found in M. de Compiègne's two volumes, nor did I even want that; and I beg here to assure him that I not only consider he has amply repaid any debt of gratitude he or M. Marche might have owed me, but that I now deem myself their debtor, and shall gladly welcome the opportunity of requiting them to the best of my ability.—I am, Sir,

Yours, &c.,

R. B. N. WALKER.

STOCKWELL, *March 7th*, 1876.

Personalia.

MAJOR-GENERAL DOBNER, the Director of the Military Geographical Institute of Vienna, has resigned, and General Guran has been appointed in his stead.

On the 8th of March Dr. NEUMAYER, who is about to assume the direction of the German Nautical Observatory, was entertained at a parting dinner at Berlin.

Dr. ANDREAS, the German traveller, who had left Karachi to follow in the footsteps of Alexander the Great, has returned to that place disabled by sickness. He is about to embark for Gwadur.

M. BEAUMIER died on the 30th of January at Bordeaux. He was French Consul at Mogador for many years, and has published several valuable papers on the geography of the Empire of Marocco.

Proceedings of Geographical Societies.

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ROYAL GEOGRAPHICAL SOCIETY.

Meeting of February 14th, 1876.

EXTRACTS FROM THE DIARY OF THE LATE MR. MARGARY FROM HANKOW TO TALI-FU.

The PRESIDENT took the chair at 8.30 P.M. In proceeding to the business of the evening, Sir HENRY RAWLINSON made some observations on the great promise which the late Mr. Margary's intelligence and energy held out; on the remarkable nature of his journey from the east coast of China, to the Burmese frontier, and on the melancholy fact that his father, a distinguished officer of the Royal Engineers, had apparently never rallied from the shock of his son's death.

Extracts from the diary of the late Mr. Margary were then read. Mr. Margary left Shanghai on the 22nd of August, 1874, and six day's after reached Hankow in a very bad state of health, which much retarded preparations. In an interview with the Viceroy, His Excellency strongly recommended Mr. Margary to take the Hu Nan and Kwei Chou route, and on his deciding to do so, issued orders to all the officials along the route to aid and protect his progress. On the 4th of September, Mr. Margary left Hankow and proceeded up the Yang-tse in a mandarin boat, the party numbering six in all. The country on either side is at first flat and dry, and cultivated with cotton and sesamum. A very noticeable feature are the rafts employed for floating timber.

At Loshan, Mr. Margary called on the local official, but the town, never having been feasted with even the sight of a foreigner, a curious and noisy mob gathered together, and were with difficulty repressed from filling the audience room. A stretch of downs surrounded the town of Loshan, and behind these extended a flat plain as far as the eye could reach, cultivated with rice and lotus.

On September the 20th Mr. Margary sailed for the celebrated island of Chünshan, which lies at the entrance of the Tung-ting Lake. Here leave was taken of the muddy Yang-tse, and the travelling party entered into cleaner waters. The wind was favourable and strong, and they accordingly sailed straight across the lake (which is extremely shallow), and entered the Yuan River, with a good breeze. At Ni Hsin T'ang, 60 *li* from the mouth, there are grassy banks, thickly covered with willow trees, instead of bare towing paths and muddy deposits; there was neat and careful cultivation of cotton, the homesteads were well-built, and, generally speaking, signs of prosperity abounded. About 250 *li* from the mouth there is a small tributary, said to communicate with Sha-shik, on the Yang-tse. After landing at Ch'angtê, Mr. Margary proceeded to T'ao-yuen Hsien, a large and flourishing city, formerly a depôt for the pottery trade, large quantities of which found their way to C'hên-chou Fu. It is the most lawless, independent district in the whole province. The mountain scenery is here very attractive; pines clothe the hill tops, and lower down there are several stout trees of the ash kind, and Mr. Margary even came across two palms. The next day the river, with its beautifully clear water, was considerably narrowed, and began to wind about between fine rocky gorges. The rocks rose perpendicularly, in a triangular shape, out of the shallow waters at their base with a grandeur which was most impressive. Mr. Margary pronounces the whole of Hu Nan as an exceedingly good field for geological examination. The river now began to be studded with rocks, and the danger arising from rapids was great.

On the 2nd of October Mr. Margary had the misfortune to be prostrated by dysentery, but was fortunately soon enabled to proceed. The extreme difficulty of buying food proved a serious matter to him the whole way, and he recommended Europeans who may come that way to lay in a supply of foreign provisions.

At Chên-ch'i Hsien the route up the river takes a remarkable and provoking bend to the south for over 100 *li*, and then northward till, reaching the same latitude as before, it lies westward again. Ch'ên-yuen-Fu was reached on October 27th. Rocky heights completely surround the town, and lend a grandeur to its position.

The following day the land journey was commenced. At a place called Ch'ing p'ing Hsien Mr. Margary saw coal exposed for sale, which clearly indicated the existence of mines in the neighbourhood. As the capital was approached the cities grew larger, the villages more numerous, and cultivation more frequent, rice and tobacco being the two principal crops.

On November the 3rd Kwei-ting Hsien was reached. The road on the following day lay, for the most part, through narrow ravines, where the grass-clad hills approached very close, and no room for cultivation intervened. Thick hedgerows lined the highway of what in other countries are forest-trees, but here only stunted shrubs.

On the 5th of November Mr. Margary entered the capital of Kwei Chou (Kwei Yang). The first view of the city from the top of the last pass is very beautiful. It rests on an uneven plain, well supplied with trees, and completely surrounded by high hills. Many of these rise isolated from the plain, are clothed with rich vegetation, except at the top, where they are faced with smooth, black rock, and are crowned with imposing temples. The last mile of the road was crowded with memorial arches of white marble, &c., in honour of pious women. Mr. Margary being several days behind time, determined to dispense with carriers, and put everything on horseback. At Ching-Ch'i Hsien (62 *li* further on), the country around presented vast tracts of level arable land, now covered with long grass, but bearing distinct traces of former tillage. The general direction of the valleys was east and west. Wild flowers filled the road-sides, and the tea-plant, in full blossom, grew wild in the hedgerows. The most remarkable feature of this province is its hills.

The plain of Kwei-Yang, which extends north and south, as well as the country beyond Ching-Ch'i Hsein, is studded with detached hills under 300 feet high, and the country south appeared for a great distance to partake of the same character. Mr. Margary remarks that one thinks of Kwei-Chou as an inaccessible mass of mountains, but that it was quite agreeable to find it possessed of many fine plains lying in the right direction. After winding over grass-covered hills and undulating wastes, the road led to Langtai. Here a really mountainous region was at last reached, and the road was full of steep inclines. Mr. Margary estimated the height of the highest ranges at about 4000 feet. The river Mekou is the boundary of the wild-tribe settlements. These social outcasts comprise two races, the Miao-tzu and the Chung-chia.

Proceeding westward, cultivation increases, the villages become more frequent, and there is some traffic in oranges and straw shoes. Yun-Nan is a colder climate than Kwei-Chou, where the houses are not built so as to resist cold. The average temperature hitherto had been 55°. About a mile from the Chou, city of Pu-an, the last great barrier, the Yun-Nan pass (3300 feet) was reached, and on the 20th November the frontier town was passed. Yun-Nan-fu was reached on the 27th November, and the people proved neither curious nor troublesome, while the magistrate was extremely civil and, at the desire of the Viceroy, sent a couple of mandarins to escort Mr. Margary to Yung-Ch'ang-fu. At An-ning Chou, extraordinary honours were paid to Mr. Margary. Beyond that point hundreds of animals were met carrying salt along a road, which gradually grew worse and worse, the pavement having been apparently torn up by the Muhammadan rebels and the track being thus reduced to a chaos of deep ruts and broken stones. Mr. Margary remarks that if only an easy road lay between Yun-Nan-fu and Bhamo, a perfect flood of British goods would be swallowed up for the Kwei-Chou and Szechuen markets. The merchants of the latter province would naturally prefer to buy at Yun-Nan and float their goods down the Yang-tse, to the risk and expense of the difficult ascent from Hankow up the I-ch'ang.

Mr. Margary's subsequent letters spoke of his kind reception in Tali-fu, on December 17th, although he had been warned against these people. His route then led, *viâ* the city of Yung-Chang, to Momein and Manwyne, on the frontiers of Burmah. At the latter place, where he was subsequently murdered, he was also very well received by the local authorities. He joined Colonel Browne's party at Bhamo, on the 15th of January, having thus accomplished a journey through the south-western provinces of China, which no European had succeeded in doing since the Jesuit missionaries in the early part of the eighteenth century. He was treacherously murdered at Manwyne, on his return to that place in advance of Colonel Browne's expedition, on the 21st of January, 1875.

In the discussion which followed, Sir RUTHERFORD ALCOCK remarked on the great perseverance displayed by Mr. Margary in making this journey from the east coast to the Irawadi while stricken down by fever and dysentery. There were two gaps in the journal, the second covering the journey from Tali-fu and Bhamo, but Dr. Anderson had met him at the latter place, and would be able to supply some interesting information respecting that part of the journey. He inferred from Mr. Margary's journal that the intention of the Chinese Government was to afford him a safe conduct, and, with a few exceptions, the local officials had behaved with great courtesy and attention. In 1869, just before he (Sir R. Alcock) had left China, he sent an expedition, under Mr. Consul Swinhoe, up the Yang-tse-Kiang to see whether navigation could be carried on further than was usually believed. In a steam-vessel they reached 9 miles further than the 'Opossum' had gone, and in river boats 322 miles further up. More than 100 miles of the intervening space was occupied by rapids and gorges, which rendered the stream utterly unnavigable for steamers. Sir Rutherford concluded by expressing an unfavourable opinion of the possibility of opening up a profitable trade with South-Western China.

Dr. ANDERSON then read extracts from Mr. Margary's letters, beginning from a point four marches from Tali-fu. The view of the city with its glistening white walls and pagodas standing on the edge of its splendid blue lake, and backed by black rocky heights, is described as glorious. Tali-fu lies about 10 miles from the road to Yung-chang-fu, and two of the mandarins tried to persuade Mr. Margary not to enter the city, alleging that the temper of the people was dangerous. Mr. Margary was, however, determined to enter and was agreeably disappointed to find the people respectful and the Tatar-General a perfect gentleman, who said that on his return he would invite the Mission to stay in the city. Tali-fu was left on the 18th of December, and though high mountain regions and steep ascents were passed between it and Yung-chang-fu the route was not so bad as the previous portion. After passing through Teng-yueh chow (Momien) he reached Manwyne on the 13th, and after journeying across the Kakhyen Hills arrived safely at Bhamo.

Dr. Anderson proceeded to remark that there were three routes radiating from Bhamo as a centre. The one selected was the most southern, the northern and Nan Tin routes had been explored by Major Sladen's expedition in 1868. On the arrival of the expedition in Bhamo reports began to fly about of expected opposi-

tion on the other side of the frontier, but little credence was given to these rumours, and Mr. Margary, who scouted them, was sent forward after expressing his willingness to go. On the evening of the 19th he arrived at Manwyne and stayed there two days after writing a note to say that all was quiet. On receiving his note the expedition moved forward, but two days afterwards they received information from the Burmese agent at Manwyne that Mr. Margary had been murdered and that an immediate attack was impending. Through the aid of the 100 Burmese attached to the party, who threw up earthworks, and the pluck of the Sikh escort, the attack was beaten off, and the expedition escaped into Burmese territory.

Colonel YULE said that the Yang-tse had been repeatedly explored, but that Mr. Margary's only predecessor in Kwei-Chou and Yunnan was the late Francis Garnier, who spoke of it as an extraordinary limestone country, where rivers vanished and reappeared, changing from one basin to another. Garnier's march to Tali-fu was a most daring exploit, comparable only to Sir L. Pelly's march to the Wahabee capital. Colonel Yule then gave a description of the various routes leading to and from Tali-fu, which was the natural centre of all the trade routes of Western China, and concluded with a notice of Marco Polo's route through the various regions referred to.

Meeting of 28th February, 1876.

THE PRESIDENT, SIR HENRY RAWLINSON, took the chair at 8.30 P.M. The first paper read was

ON A VISIT TO THE VALLEY OF THE SHUELI, IN WESTERN YUNNAN, BY NEY ELIAS, F.R.G.S.

MR. NEY ELIAS had been ordered to Bamo to prepare the means of transporting Colonel Browne's Mission across the Kakhyen country into China, and it became part of his duty to visit the Shueli Valley, in February and March, 1875

Of the numerous routes leading from Bamo to Western Yunnan, two only are trade routes, properly so called, namely, the Northern or Tapeng route, already reported on by Major Sladen and Dr. Anderson, and the lower or Sawuddy road. It is upon the Sawuddy road that Mr. Elias now reports. The plain between the lower slopes of the hills from which this road descends and the Irawadi is from 9 to 10 miles broad, and the numerous streams spread themselves out in the form of swamps or shallow flood-lagoons, which are slowly dried up by evaporation. Thus it is only in the winter and early spring that a practicable road exists between Bamo and Mansey, the point where it converges with the track from the Irawadi and enters the hills.

In ascending from the Mansey the track leads, for a short distance, across the low land to the eastward, and then commences to mount the spurs of the hills—a rough mountain pathway, leading along the side of a transverse range, which appears to be one of a series of three or four that abut, at one end, on the valley of the Irawadi, and at the other on that of the Shueli. The views obtained of the Irawadi Valley and neighbouring mountains, from various points in the ascent are extensive and beautiful. The river itself, with its islands and sandbanks, can be clearly traced from its egress from the third defile to its entrance into the second. The high land is inhabitated throughout, and there are villages and patches of cultivation; but the road is merely a rough hill-side track, while many of the nullahs and rocky places try the endurance of loaded animals severely. Nevertheless, it is said to be easier than either the northern or middle routes.

Besides the little gardens of tobacco and vegetables usually seen around Kakhyen villages, there are, in these hills, small enclosed patches of poppy; but the whole yield forms a very insignificant portion of the amount of opium consumed, the balance being obtained from the Chinese Shan provinces of Yunnan. The greatest altitude is about 4700 feet, and shortly after attaining it a distant but magnificent view is opened out of the Shueli Valley, with the river winding through it, and beyond the mountains of Yunnan. This point can scarcely be called a pass, for the road winds obliquely over a rounded ridge of gentle gradients on both sides.

The route emerges from the hills on the flat plain of the Shueli Valley, at the small Shan village of Canklem, on the right bank of the Nam Wun. Here the Chinese border is crossed, and about a mile further on, standing like an island of trees and gardens in the otherwise bare plain, is the village of Kutlung, consisting of about thirty Shan houses.

The distance from Kutlung to Mungmau is about 22 miles, and several moderate-sized villages are passed on or near the road, surrounded by some kind of light stockade, or low earthen wall. Mungmau is the capital of the Tsaubwaship, and may be regarded as the modern representative of the Mungmaorong of Major Pemberton, and the capital of the ancient Shan Kingdom of Pong, founded A.D. 568. Mungmau stands on an open rising plain, at a distance of about a mile from the river's right bank, and is protected by a brick-wall, about 500 yards square and 16 feet high, with four gates. The buildings within the wall are inferior bamboo huts, without arrangement of any kind, and the population is about 1800, all, except a few officials and soldiers, being local Shans.

Nam-Kam, near the opposite bank of the river, and some 20 miles lower down, is the chief town of the Burmese Shan Tsaubwaship, forming one of the thirty-nine *maings* or townships of Theinnee. It is ruled by a Shan, there being no Burmese officials or soldiers.

The Shueli Valley, as a level plain, has its upper limit only some 6 or 8 miles above the town of Mungmau, and its lowest limit near the point where the river re-enters the hills, in its course to the south-west. It would thus measure some 30 miles in length, with a breadth varying between 4 and 12 miles. Nearly the whole extent appears to be good arable land, but less than one-half is under cultivation, rice and tobacco being the staple products. Large fruit-gardens and fields of pine-apples are met with round the villages.

From a physical point of view the most remarkable feature of this section of the course of the Shueli is its altitude above the sea, and the consequent great fall which the river must have in its course towards the Irawadi. Taking the altitude near the lower end of the valley to be 2600 feet, and estimating that of its confluence with the Irawadi at 300 feet, we have a fall of 2300 feet to be accounted for, within a distance (allowing for windings) of 140 miles.

Throughout its upper valley, in the Shan States, the Shueli flows in a wide but generally well-defined shingly bed, and with a scarcely perceptible slope between the upper and lower end of the valley. At the ferry within a mile of the Nam-Kam the breadth of the river was about 100 yards, the average depth across some 4½ feet, and the surface-current about 1½ knot an hour.

The scenery below the entrance of the river into the hills is remarkably wild, and I am informed that it continues to flow through almost uninhabited hill-tracts until it reaches the plain of the Irawadi. The Kakhyens describe the falls and rapids as occurring at intervals of every few miles, and a sheer waterfall, of great height, is spoken of, which is difficult of access owing to the rugged nature of the country around it.

The Kakhyens, in this border region, are clearly the dominant race, and come and go in the Shan country as they please, attending the markets both as buyers and sellers, and frequently hiring the Shans as bullock-drivers or porters for their produce. On the other hand, the Shans never venture among the hills of their

neighbours without an escort of Kakhyens, procured through the head of a protected village. In bravery, courtesy, hospitality, and probably also honesty, the Kakhyens are far in advance of the Shans of the Shueli Valley.

In the Mungmau Tsaubwaship there are four localities where markets are held, and four also in Nam-Kam. Mr. Elias had opportunities of witnessing two of these markets, and in both cases there was a fair gathering of people, local Shans, and a considerable number of Kakhyens and Hill Chinese. The objects for sale were chiefly eatables and chewing stuffs, a little native cloth, and a few English piece-goods—such as red cambric, blue drills, T-cloth, and muslin; some salt, a few fruits, and salt fish. A great deal of the business is conducted by barter; and there is no coin current, all trade—not barter—being carried on by means of Chinese block silver. All the trade between Burma and the Tsaubwaship of Nam-Kam is carried on by the Sawuddy route, the animals used being bullocks or ponies.

After describing the Shueli valley, Mr. Elias has a note on the more northerly routes between the Irawadi and Yunnan. They are two in number; and though but little used at the present day, it is possible that in the earlier times one of them, at least, may have been a common highway between Yunnan and the Irawadi. It is certainly the shortest traverse from Momien to practicable navigation. The distance, by either route, is performed by ordinary travellers on foot in about six days, or if on horseback, in five days, or even less. With our present information it is not possible to say whether either of these routes can be that on which Marco Polo describes the great descent of two and a half days' ride, leading to the forest of Mien; but one of them would certainly appear to point to the road travelled over by the 20,000 fugitives from Yunnan-fu to Ava in the year 1687; mentioned in vol. ii. p. 73, of Yule's *Marco Polo*.

In a second note Mr. Elias gives some account of what is known of the origin or early history of the Kakhyen or Singpo race. The only two previous accounts are those of Major Hannay, who visited the Singpos in 1827, and Captain Neufville, whose explorations among tribes bordering on Upper Assam extended from 1825 to 1828. Both are necessarily brief, and both refer chiefly to the Singpos occupying the slopes of the Patkoi range, and the right side of the Irawadi valley. Comparatively little light is thrown on the more southern clans, sometimes known as the Kakoos, and whose homes are chiefly beyond the left bank of the river.

It is these latter mainly who are known to the Burmese, and who have been named by them Kakhyens. In all probability they are looked upon as an inferior race by their brethren to the north—the Singpos proper—but still they are in no way subject to the latter; while their language, customs, and traditions are essentially the same.

The Kakhyens are subdivided into numerous clans or sub-tribes, and are also sometimes roughly spoken of as Kakoo-Kanams, or upper and lower Kakhyens, referring to the positions they respectively occupy as regards the Irawadi. The dividing line is generally indicated as the third defile of the Irawadi. But most of the Kakhyen clans change their positions considerably in the course of a generation or two, the tendency being to press towards the south.

All the lower Kakhyens point to the north as their original habitat, and it is reported that, at the time of the present King of Burma's accession to the throne, no Kakhyens existed within the government of Momien, whilst at the present day large numbers are to be found there, and at other places south of the second defile of the Irawadi.

As far as Mr. Elias has been able to ascertain, no mention of Kakhyens or Singpos is to be found in Burmese writings until very recent times, and perhaps the earliest mention of them in any written language may be that contained in the Shan histories of Mogaung.

The country at present occupied by the Singpos, and the more northern of the Kakoo tribes, would seem formerly to have been inhabited by the Noras, a tribe of Shan kinship. In about the year 1225, the king of Mungmau undertook the conquest of the Noras, as part of his scheme for the subjection of Upper Assam; and it is in the records of this campaign that the Kakhyens are first mentioned; and both the date and locality of this first appearance of the Kakhyens coincide with their own traditions.

Mr. Elias obtained a copy of a pedigree, which was put in writing, at Bamo, under instructions from one of the most powerful chiefs among the Kakoos or southern Kakhyens. He refers the birthplace of his race to the east of the Irawadi, and on the southern border of Khamti, and places the first man at a distance of twenty-three generations from the present time. As a subject connected with their history, Mr. Elias gives a list of the *Nats*, or spirits, worshipped by the Kakhyenis If viewed in the point of a connecting link with these Hindu neighbours in Assam, it will be seen, too, some slight impression has been made by contact with the latter, and a few, at least, of their *Nats* may be traced, either directly, or through the Shans or Burmese, to Hindu mythology. Further investigation of their traditions might bring to light still closer connection. Probably their religion is made up of a mixture of all the various idolatries and superstitions of the nations with whom they have intercourse.

During the short time spent in contact with the Kakhyens, Mr. Elias was frequently struck with points of resemblance between them and the "Gold-teeth," the "Zardandan" of Marco Polo, and the "Kinchi" of the Chinese writers; although the locality in which they are found, and the absence of the characteristic custom of covering the teeth with gold, prevent the Kakhyen or Singpo tribe from being identified with the "Gold-teeth." The Kakhyens change their position very considerably in course of time. Still they have no tradition of having come from so far east as beyond the Salween, where the "Gold-teeth" appear to have lived. Marco Polo says that the "Gold-teeth" tattooed their arms and legs. The Kakhyens resemble them to some extent in this custom; although tattooing is not universal with them. The custom of "couvade" does not exist among the Kakhyens; neither "Gold-teeth" nor Kakhyens have prejudices regarding food, and both make a drink of rice-wine. Neither have idols or churches, letters or writings. Both have the custom of cutting notices on a piece of stick and then splitting it, so that half may be retained by each of the two parties to a transaction. Both had "never a leech," and appealed to the devil conjurors. On the whole, although there are points of resemblance, it is probable that we must look further east for descendants of the "Gold-teeth." The tribe most probably representing the "Gold-teeth" is that of the Leesaws in Western Yunnan, who nearly resemble the Kakhyens in features, costume and arms.

Mr. Elias concludes his paper with a note on the route survey from which he constructed the map.

Colonel YULE referred to Mr. Ney Elias's past services, more particularly to his great journey of 2000 miles across Mongolia, and spoke highly of his capabilities as a traveller. The Shueli river had been distorted on modern maps, much as the course of the Tsanpo and Irawadi had been treated, but we now learnt that it did not run any great distance. Still there was a good deal to adjust with regard to the courses of the Irawadi, Mekong, and Salween. The Kampo was in all probability the same as the Lohit, the eastern branch of the Brahmaputra, and the Ku-Kiang, the eastern source of the Irawadi.

The second paper read was by Mr. C. R. Markham

ON AFGHAN GEOGRAPHY.

The paper commenced by a reference to the political importance of Afghanistan to our Indian Empire, and to the scanty knowledge we have of it. Much information, however, had been amassed during the British occupation of the country, and certain extracts from the MS. journal of General Lynch had recently been communicated and shed much light on the country of the Jaguri Hazarehs. He had set out in 1841 from near the head waters of the Turnuk, and had visited the valley of the Argandab, both of these rivers being natural tributaries of the Helmund, but their waters being exhausted by irrigation before reaching the main stream. The valley was, in ancient times, inhabited by a people of Tajik race, who were subsequently conquered by Mughal conquerors.

No European except Conolly, Pottinger, and Ferrier had penetrated into this secluded region. General Lynch describes some of the valleys between the Turnuk and Argandab as highly cultivated, and yielding fine crops of corn and lucerne. There were old lead and silver mines scattered about and from information he received, General Lynch has little doubt that coal is to be found. There are some remarkable excavated caverns in some of the mountains, and on the top of a gigantic scarped rock, from the base of which flows the source of the Kurnuk, is the shrine of Bibi Nani, or Nannœa, the Babylonian Venus, the worship of which was introduced into Bactria from Syria, and is frequently indicated on the Indo-Scythic coins. General Lynch returned to Kandahar at the end of the month of September. He had not prepared a map, but had regularly recorded bearings and distances and rounds of angles at several conspicuous points, and his work covers a small part in the south of this triangle-shaped region, the northern base of which is formed by Pottinger's route from Herat to Kabul, and the southern apex by Kandahar.

Mr. Fraser Tytler, who was in Afghanistan between 1838 and 1842, also devoted much time to the accumulation of geographical material, and through his care the route surveys of several officers had been preserved. In 1845 Mr. Fraser Tytler commenced the compilation of a general map of the countries between the mouths of the Indus and Bokhara, and from the Seistan Lake to the longitude of Delhi, and this is the only map on which the Hazareh country is treated at all intelligibly.

Mr. Markham concluded by announcing that all these materials would be handed over to Major Wilson, who was engaged in compiling a map of Afghanistan, and this would afford us a good opportunity of seeing what gaps in our knowledge of the country required to be filled up.

In the discussion Colonel MACGREGOR said: The subject of Afghan geography is one which should have been of the very greatest interest to us. I say should have been, advisedly; because it is a fact that although our frontier has run with Afghanistan for the last thirty years, though our attention as an Asiatic power has been drawn to it since the commencement of this century, and though we must always have felt the day might come when we might again be drawn into closer connection with it, still for nearly forty years we have almost neglected all attempts to add to our knowledge of that country. This want of information has been more brought home to me than to most people, and, therefore, it is right I should continue, as I have done hitherto, to take every opportunity to bring it to notice. In 1869 I was employed by the Indian Government to compile a work from existing records, relating to the topography of Afghanistan. I did so; but though finished in 1871, nearly all the information in it dates from as far back as 1841-42, having been, in fact, collected by the gallant officers of our army operating in the country in those years, and therefore it is evident that it might just as well, in fact better, have been done in 1849 than in 1869.

Having thus acquired some knowledge of Afghan geography, I might tell you here much that no doubt would be new to you; and the best thing I could do would be undoubtedly to extract from those pages of my work which relate to the subject of this evening; but in the first place the time at my disposal is limited, and in the second place my work has been made of such a strictly confidential character that I am not sure that I should be justified in reading it myself without permission. But if I may not tell you what is in it, I may at least say what is not in it; and if the list seems to you rather a long one, my mentioning it here may perhaps have some effect towards inducing those, in whose power it lies, to do a little towards diminishing it.

I will begin with the parts of Afghanistan nearest our frontier, and it is strange to find that, if we except a few places where our troops have penetrated in the various frontier expeditions, we are just as curiously ignorant of the country immediately beyond our border as we are of many other important parts of Afghanistan. We do not even know the proper course of the Indus between Boonjee and Tahkot; and of the Dard valleys which drain into it on either side between these points; namely, Chilas, Kolee, Paloos, Dard, &c., we know not much more than the name. Then of Yassin, Kungood, Hunza-Nagar, and other tributary valleys of the Gilgit River, we do not know a quarter enough, and the same may be said of Wakhan and Badakhshan, and of the whole of the Chitral and Kashgar valleys.

Coming further south, our knowledge of the hill country of the Yusufzai clan, viz., Chakesar-Ghorbund, Kooner, Swat, Deer, of Bujawur, and the further Mohmund country is extremely limited.

I might continue this list all down the frontier till we come to Sind, and show that the country of the Afreedies, of the Zwaemooskt, Bungush and Toorees, of Khust and Dawar, the Zhob valley, the large tract inhabited by the Kakurrs, are almost to us sealed books. And to show that I am not exaggerating, I may mention that I have three times fruitlessly given in lists of no less than seventeen important military routes, leading from Afghanistan to our frontier, of which we have not sufficient information to enable our Government to form any sound opinion. There is one point which will bring this before you in a very clear light. You have all read Sir H. Rawlinson's able work, in which he says that if the Russians go to Merv we must go to Herat. Now I ask by what route would such a force enter Afghanistan? Probably you will answer by the Bolan. But why the Bolan? Our principal military strength is not down in Sind, but in the Punjab, and men as well as material could much easier be concentrated at Multan than at Sukkur. Still I think the route chosen would be the Bolan, and the reason is because we do not know any other sufficiently well. And yet, in the list I have alluded to, there are no less than six other routes mentioned which are probably not inferior in any one respect to the Bolan.

Then, though in our most recent and best map of Turkistan, by Colonel Walker, the hills and rivers of the country north of Kandahar and east of Herat are very boldly and graphically delineated; the fact is, we have almost no warrant for placing anything here but a blank. And this is a country which is of the utmost importance to us, for through it lead important military routes from Maimunna to Kabul, from Baba-Moorghaub to Kabul, two routes from Herat to Kabul, one by Bamian and the other by Besood, a route from Herat to Ghuznee, and a direct route from Kabul to Furrah.

Besides all these unknown routes, I find there are a series of passes, no less than thirteen in number, which lead over the Hindu Kush from Balkh and Kunduz to Kabul, regarding the military practicability of which we are absolutely ignorant.

Finally, we know far too little of the country lying in the direct line between Kelat and Seistan. It may be said it is all very fine to pick holes, but I beg to say I

have done more than this, for I have shown how all this may be remedied; and till it is remedied we cannot be said to know Afghanistan thoroughly, nor can our Government ever feel free to undertake operations in that country,

The policy, too, of thus exposing our ignorance may be doubted. But it is not I who expose it; the blanks on our maps of that country have shown it only too clearly for the last thirty years; and, besides, I think it is much better to acknowledge our own ignorance than to ignore it, till it brings us to grief. The first step towards rectifying a fault is to acknowledge it; and as we have now done the last, let us hope ere long the first may meet with the attention it deserves.

Colonel Yule furnished an instance of the discrepancies in maps of Afghanistan, by citing the case of Kabul and Changar, which were represented as 42, 34, and 27 miles apart on three different maps.

The President explained that during the British occupation of Afghanistan the several departments were too busy to think of collecting geographical information He referred also to the difficulties at the present day in the way of acquiring information respecting the country. Small additions were, however, being made to our knowledge of it, and Captain Sandeman had recently marched with an escort from the valley of the Indus in the direction of Quetta to Sibby, and thence by an easy route to the head of the Bolan Pass. He (the President) had collected at Kandahar some memoranda, giving several cross routes from the valley of the Turnuk to that of the Oxus, but these were not reliable geographical information, being derived from native travellers. Other officers had, however, done similar work, and their notes, if obtainable, would help to fill up the blanks in the map. Mr. Markham had not mentioned the name of Mr. Stirling, of the Bengal Civil Service, who passed the Hasarah Mountains in 1827.

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PARIS GEOGRAPHICAL SOCIETY.

January 5th, 1876.—Mr. Delesse in the chair. A letter from M. Paul Soleillet was read, in which the writer states, that by advice of M. Beaumier, the French Consul at Mogador, he proposes to proceed to Timbuktu, by way of Mogador, Akka, and Tenduf, and to return by way of Insalah to Algeria. M. Thoulet, in a letter addressed to the Society, maintains his opinion with regard to the unsuitableness of the orthographic projection for educational maps, which had been contested by M. Wacquez-Lalo.

M. Romanet du Caillaud read a *memoir* on the etymology of the word Tong-king, which signified, according to him, *Eastern Capital*, to distinguish it from *Tay-kinh*, the "Southern Capital," of Annam. This Eastern Capital he identifies with Kesho, or Ha-noi, which was known as Ton-king (Dong-kinh), when the Europeans first became acquainted with it, and its name has been transferred to the whole of the province of which it was the capital.

Baron Henri de Rasse read a paper on his journey through Corrientes, the Gran Chaco, and the territory of the *Missiones*. The Gran Chaco he likens to an English park, of vast extent, abounding in fertile praries, extensive forests, rivers, and lakes. The Indians inhabiting it, live in wretched huts, sleep on mats or hides, live very indifferently upon manioc, herbs, roots, and animals killed in the chase, and drink water, yerbamate, and sometimes cana (rum), which they procure at Corrientes. The territory of the *Missiones* is described by him in glowing colours. It numbers at present hardly 12,000 inhabitants, and its fertility, its valuable productions and fine climate, render it a most promising field for European colonists.

M. Aymonnier then read an elaborate paper on the inhabitants of Kambodia and Cochin China, which will be published *in extenso* in the *Bulletin*

January 19th. — M. Malte-Brun in the chair. The President announced that at a meeting of the Council (Commission Centrale) the *Bureau* had been constituted as follows: President, M. Malte-Brun; Vice-Presidents, MM. E. Levasseur and Daubrée; Secretary, M. Maunoir; Assistant Secretaries, MM. H. Duveyrier and J. Girard. The receipts during the past year had amounted to 2854*l.*, and there remained in hand, on the 31st December, 1875, 942*l.*, besides 83*l.* to be expended in the support of travellers. Nearly the whole of the latter sum had since been granted to MM. Largeau, de Brazza, Dr. Harmand, and the Rabbi Mordokhai, and he appealed to the members to replenish their funds. M. A. d'Abbadie had reminded them of the prizes which he had offered on his return from Abyssinia, and which consisted of a gold medal, value 21*l.*, for a journey up the White Nile to beyond lat. 4° 10′ N., and of three silver medals for measurements of the volumes of the White and Blue Niles, of the Sobat and Keilak, and of the Bahr-el-Gebel. A committee had been appointed in support of the educational exhibition, which it was proposed to hold in London in the course of the year.

Thanks were voted to M. Delesse, the late president, as well as to M. Maunoir, and the assistant secretaries.

M. Gabriel Gravier then read a paper on European discoveries on the west coast of Africa, with the exception of those made by the Portuguese. He insisted upon the authenticity of the travels of the "Mendicant Friar," which had been denied by Mr. Major.

M. Charles Velain read a paper on the Island of Réunion, which he had visited as a member of the scientific mission for observing the transit of Venus. He had visited the volcano of the Grand Brûlé, and found that it emitted aqueous vapours charged with hydrochloric acid.

February 2nd. — M. Malte-Brun in the chair. The President announced that M. Beaumier, one of their oldest members and, until recently French Consul at Mogador, had died at Bordeaux, and M. Meurand enlarged upon the services rendered by the deceased to geographical science.

A letter from Monsignor Chauveau, the vicar apostolic of Tibet was read, in which it was stated that earthquake shocks had been felt at Ta-tsien-lu, where he was stationed, on the 21st of October at 2.57 A.M. and at 8.25 A.M., and on the day after at 8.30 P.M. and 9.30 P.M.

M. de Fontbonne, formerly an assistant of M. de Puydt, submitted a new scheme for a ship canal across the Isthmus of Darien, which would enable vessels to pass through with the tides in 5 hours 57 min. 10 sec.! M. Maunoir said that our present knowledge of the isthmus did not enable us to judge of the feasibility of such a scheme.

M. Mirabeau exhibited the photographs of five Tuaregs who had been made prisoners by the inhabitants of Mzab, and were now at Algiers, where they excited much curiosity. These men had probably been members of a band of robbers, but having lost their way in the sands of the desert, they decided to approach the first camp met with. Unfortunately for themselves they fell into the hands of enemies. Hence their present position. They will probably be dismissed to their homes.

M. Maunoir announced that Captain Roudaire, accompanied by M. Baronnet, an engineer, had started for Tunisia, where he would examine the Shotts, with a view of determining definitely, whether the formation of an Algerian inland sea was practicable.

M. Duveyrier read a letter from M. Largeau, who had reached Sahan-el-Kebar, on the 26th of December, on the road to Ghadames, and had now the most difficult part of the desert before him.

M. DE LAVAL asked for the support of the Society in favour of the international photographic exhibition, which would be opened in May, at the Palais de l'Industrie. He said that a section of the exhibition would be devoted to the illustration of the scientific application of photography, and enlarged upon its importance to travellers.

M. J. B. PAQUIER then read a paper on the route of Marco Polo across the Pamir. In the main he agreed with Colonel Yule, but whilst the latter took the Italian traveller from Ish-kashm along Wood's route, he (Paquier) thought that he must have crossed the Oxus somewhere between Ish-kashm and the mouth of Surkhan. He would then have crossed the Pamir in a north-easterly direction, finally reaching Yarkand.

February 16th.—M. MALTE-BRUN in the chair. A letter from Mr. F. Warrington, the son of the British Consul at Tripolis, was read, giving information on a proposed exploration of the Ahaggar country, by Dr. E. von Barry, a German traveller. M. S. Berthelot communicated a lapidary inscription in lybico-punic characters, discovered by Don Aquilino Padron near Valverde, on the island of Ferro. M. E. RAMPON read an account of the Amazonas and its tributaries written by M. R. REYES, a young Columbian traveller. Regular lines of steamers at present navigate the Amazonas up to Yurimaguas, 3000 miles above its mouth. Several of the tributaries have likewise been opened to steam-navigation. Steamers ascend the Tapayos to Itactuba; the Madeira to the rapids of San Antonio; the Rio Negro to Santa Isabel; the Purus to Hyutanahan; the Hullaga to Yurimaguas, and the Ucayale to Saragaco. Access to the upper navigable portion of the Madeira will be obtained through the proposed Mamora railway, 150 miles in length, which is to connect San Antonio with Guyara-Mery. M. MAUNIOR read a dispatch received from M. LARGEAU who had reached Ghadames on the 5th of January. M. Cortambert announced the death of M. THORNE DE GAMOND, the projector of the Channel Tunnel. M. MAUNOIR presented to the Society a valuable collection of photographs of rare maps and other objects exhibited during the Geographical Congress of Paris.

March 1st.—M. MALTE-BRUN in the chair. A letter from Commandant PERRIER was read, from which it appears that the labours for the measurement of the arc of a parallel in Algeria are approaching completion, the only work remaining to be done consisting in the determination of the geographical position of Nemours, by careful astronomical and telegraphic observations. A letter from Lieutenant WEYPRECHT was read, explaining his project of establishing physical observatories in the Arctic regions. Russia and Sweden had already promised their support, and he trusted France would do so likewise. M. BABINET reminded the meeting that a similar proposition had been made by M. Latkin at the Geographical Congress, and that the Russian Government had offered to defray the cost of a station to be established on Novaya Zemlya. M. LEVASSEUR said that Count Wilczek had likewise offered to pay for the maintenance of a station.

Dr. HAMY informed the Society that a cavern containing numerous Caraïb remains had been discovered at the western extremity of Cuba, and these proved that the whole of the island was at one time inhabited by that race.

Mr. DELESSE drew attention to the International Exhibition to be held at Kensington in the course of the year.

The Secretary exhibited to the meeting a manuscript map of Yun-nan, compiled by M. E. ROCHER, who had lived in China for twelve years as an officer of the Imperial Customs, and had seen much of the country.

M. VICTOR GUERIN then rendered an account of his scientific mission to Palestine, in the course of which he visited Galilee and the surrounding regions. He first examined the ruins of Pella, then those of Gadara, of Gamala (where he found considerable remains of ancient fortifications), and of other ancient cities. Before leaving Palestine he devoted some time to an exploration of Tyre and its environs.

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PARIS COMMISSION OF COMMERCIAL GEOGRAPHY.

January 27th.—M. CORTAMBERT in the chair. M. LEON DROUILLET advocated a thorough survey of the Isthmus of Darien, with the view to the construction of a ship canal. He proposes an armed escort for the protection of the scientific staff, and the employment of captive balloons for making a photographic bird's-eye survey of the country.

February 25th.—M. E. LAVASSEUR in the chair. M. HERTZ, the Secretary, announced that it was proposed to give a concert for the benefit of M. Largeau, to enable him to continue his explorations in Africa. Letters received from the French Consuls at Porto Plata (San Domingo), Puerto Caballo (Venezuela), and Oporto were read. M. P. BAINIER then discussed the various projects for cutting a ship canal through Central America, and of building a railway through Central Asia.

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IMPERIAL RUSSIAN GEOGRAPHICAL SOCIETY.

Meeting of March 15th, 1876.

M. P. SEMENOF, Vice-President, in the chair. His Imperial Highness, the Grand Duke Constantine, President of the Society, was present.

M. WILSON, the Secretary, gave an account of M. Chekanofsky's geological explorations in Northern Siberia. Having discovered, last year, trias deposits in the Verkhoiansk Mountains, and after having studied the nature of the mesozoic formations along the lower Olenek and Lena, and being led thereby to conclude that the same formations probably extended to some distance from the Lena, where the deposits had hitherto been supposed to be carboniferous, M. Chekanofsky undertook to examine the course of the Lena below Yakutsk and the lower Olenek. He was accompanied in this expedition by M. Venglofsky. The travellers left Irkutsk on the 15th May, and Yakutsk on the 1st June, where the preparations for their river journey detained them for a week. In their descent of the Lena they experienced violent and contrary winds, and, owing to various drawbacks, did not reach Shigansk until the 1st of July, and Bulun until the 26th. The winds were still contrary, and M. Chekanofsky, wishing to explore the northern tundras, they decided to desist from further navigation along the Lena, and accordingly started from Aiakik (25 versts below Bulun) for the Olenek River, and, following its course, arrived at the mouth on the 26th August. They then proceeded eastward until, on September 1st, they reached Cape Cross, the furthest point. From thence they made for Bulun, where they arrived on the 18th of September, and after waiting for a month, so as to allow time for the rivers to freeze over, they returned to Irkutsk by way of Verkhoyansk and Yakutsk. The tundra crossed by them, after leaving Aiakik differs considerably from the marshy ones of Western Siberia, and their detailed examination of it was favoured by the mildness of the autumn, owing to which the vegetation was in its prime, until the 26th of August, in latitude 72° 30′ N.

M. Chekanofsky has completed a route survey, a geological survey, and a journal of his route from Yakutsk to the mouth of the Olenek, besides making palæontological, botanical, and entomological collections of great richness.

After touching briefly upon the expeditions of Messrs. Chekanofsky and Sosnofsky, the latter of whom was present, the Vice-President mentioned that two new expeditions were to be despatched, one under M. Pota-

nin, into north-western Mongolia, and the other under M. Prshevalsky; the details of the latter scheme would be communicated at the next meeting of the Society. The Vice-President then acknowledged the presence of Messrs. Brehm and Finsch and Count Waldburg-Zeil, members of the Bremen *Polarverein*, on their way to Siberia.

M. Sosnofski then gave an account of his recent journey through China. The expedition was got up by the Departments of Foreign Affairs, Finance and War, with the object of opening new markets for trade, exploring the route from Zaissan through Dzungaria and the province of Szechnen, and seeing how far it could be adopted for purposes of commerce, and obtaining information respecting the Tunghan rebellion, and the means adopted by the Chinese to quell it. Besides M. Sosnofsky, the expedition consisted of M. Matussofsky as surveyor, Dr. Piassetsky as naturalist, M. Boiarsky as interpreter and photographer, and a Chinese tea agent from Kiachta. The party set out from the last-mentioned place for Peking, and eventually reached Hankow in October 1874. From thence they ascended the Han Tsian River, which proved to be easily navigable for steam vessels, and eventually arrived at Zaisan, by way of Hanchung, Hami, Barkul and Guchen. After having traced his route, M. Sosnofsky gave a description of the general character of the countries traversed, of the inhabitants, the chief industries, and the current prices of goods. A large number of scientific observations and collections had been made, besides a collection of Chinese industrial products. These latter articles, and an interesting series of photographs of different types of races, of views, monuments, &c., served to illustrate the lecture, which was warmly applauded.

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VIENNA GEOGRAPHICAL SOCIETY.

February 22nd.—Dr. von Hochstetter in the chair. The following were elected honorary or corresponding members:—Cesare Correnti, of Rome; Dr. J. V. Hayden and Captain Richard Burton; M. F. Spitzer, of Paris; Professor C. E. Meinicke, of Dresden; Mr. A. C. Selwyn, Director of the Geological Survey of Canada; Dr. James Hector, Director of the Geological Survey of New Zealand; Colonel Stone, Chief of the Egyptian Staff, and Dr. R. Schomburgk, of Adelaide,

The President explained to the meeting the plan for the Italian African Expedition, and stated that Herr C. von Csúzy, one of their members, would probably accompany it.

He then read a letter received from Herr E. Marno, which was accompanied by itineraries, meteorological and astronomical registers, and a map of Kordofan. Ismain Pasha, the Governor of Sudan, had invited the Austrian traveller to pay him a visit in Dar Fur. He left Khartum on the 26th July, and reached el 'Obeid, the capital of Kordofan, on the 5th August. The mudir of that province, however, would not permit him to proceed further; Marno applied to Cairo, but, contrary to his expectations, he was told that "this was not a favourable time for a visit to Dar Fur." He had, however, made use of his leisure for exploring Kordofan in several directions, and was thus able to return to Khartum, in November, with a rich harvest of geographical facts.

Dr. Stache then read a paper on "Tunis," and Baron Call-Rosenberg gave an account of an ascension of the Demavend.

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EGYPTIAN GEOGRAPHICAL SOCIETY.

February 18th.—Dr. Schweinfurth in the chair. Dor Bey gave a description of the Somal country, based upon the papers of the late Hagenmacher, who had accompanied Munzinger on his unfortunate excursion to Ausa, and died from exhaustion on the return journey. His notes contain much of interest respecting the products of the country and its inhabitants.

The President communicated a telegraphic despatch from M. de Lesseps, announcing the discovery of two magnificent sphinxes at Ramses. The question of appointing a commission for examining into the ancient geography of the Isthmus of Suez was discussed, and it was resolved, not to appoint one as they had no scientific men amongst them specially qualified for archæological or historical research, and the promotion of exploratory journeys was thought to fall more within the scope.

Dr. Schweinfurth gave a detailed analysis of Stanley's discoveries, illustrated by a large wall map specially prepared for this meeting.

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ITALIAN GEOGRAPHICAL SOCIETY.

January 9th, 1876.—Signor Correnti, the President, announced the deathof Count Miniscalchi-Erizza, the Vice President of the Society, and one of its founders. He had been a great traveller, and his linguistic studies insured him a prominent place amongst men of science. Amongst the works left behind him were a dictionary and a grammar of the Akka language, which he hoped would be published.

The President then announced that he had prepared an essay on Italian geographical school-books and maps.

Signor Camperio spoke on recent African explorations, with special reference to Cameron's last journey. He was disposed to believe that the Lualaba lost itself in some inland lake and had no connection with the Congo.

Signor Malvano announced that the 4000*l.* required to cover the expenses of an Italian African expedition had now been raised, government having contributed 1000*l.* and that the expedition would leave in February, under the command of Signor Orazio Antinori. Its main object would be the exploration of the Gojèb, and of the countries between Shoa and the Victoria Nyanza. It would proceed with that view to Ankobar, the capital of Shoa, and thence to Kaffa. Its ulterior proceedings would depend upon circumstances, and its success would ensure for Italy the honour of having contributed in an effective manner towards an elucidation of African geography.

Signor Henry de Gubernatis then rendered an account of the work done by him during six years in the Epirus. He had made a survey of nearly 6000 square kilometers of the least-known portions of that province and was now preparing for publication a map of Epirus, on a scale of 1:100.000; a map of the plain of Yanina on a scale of 1:50.000; a plan of Yanina, and an ethnographical map of Epirus, exhibiting the distribution of Greeks, Albanians and Walachians. These maps would be accompanied by an exhaustive geographical memoir.

February 12th.—Signor Correnti in the chair. The President announced that the members of the African Expedition were now *en route*. Count Martini had already reached Aden; whilst the Marquis Antinori and Professor Chiavini were about to embark at Genoa. There had occurred some difficulties with the Egyptian Government, but these had disappeared, in consequence of the defeat suffered by the Abyssinians and of the annexation of Harar. The subscriptions raised had surpassed their expectations. Private persons and public institutions had alike contributed. They had had many applications from persons desirous of joining the expedition, but had felt bound to refuse these offers. In the meantime a West African Expedition was being organized by Signor Adamoli of Milan, already favourably known through his travels in Turkistan.

The President placed upon the table a translation of Dr. H. Barth's work on *Eastern Africa*, which had

carefully been brought down to date, and stated that translations of Oberlander's *Western Africa* and of Hellwald's *Central Asia* were preparing for publication, as were likewise a new edition of G. Miani's travels, an account of Antinori's residence amongst the Bogos, and other works.

The President then announced that the Society now numbered 2068 members. Their Ethnographical collection had been incorporated with the prehistoric and anthropological museum of Rome. The formation of a Commercial Section, in connection with the Society had been proposed.

Signor CAMPERIO then rendered an account of Cameron's journey across Africa, and Signor NARDUCCI gave some particulars on a "Bibliography of the Tiber" which had been prepared by him.

February 17th.—Signor CORRENTI in the chair. M. B. DE BEAUMONT, President of the Geographical Society of Geneva, read a paper on an "Initial Meridian." The Geographical Congress of Antwerp had recommenced the meridian of Greenwich for charts only, and had thus allowed this question to remain an open one. He proposed that the initial meridian should pass through Behring Strait.

The Secretary then read the last letters received from Signor d'Albertis, who, since June 1875, had made several excursions into the interior of New Guinea, including one up the river Nikuva. With reference to the colonization of New Guinea he recommends the Dutch system in preference to that generally followed by England. The former civilized the natives, the latter supplanted them, and though the material advantages to be obtained by the former might not be so great it was infinitely more humane. The natives of New Guinea were an intelligent, industrious and docile people, and capable of development. Commerce, which was sure to spring up amongst them, would prove equally beneficial to Europeans and Papuans.

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DUTCH GEOGRAPHICAL SOCIETY.

Dordrecht, 12th February.

PROFESSOR P. J. VETH in the chair. The PRESIDENT announced that the number of members now exceeded 700, and he appealed to them to support, to the best of their means, the proposed expedition to Sumatra.

M. J. A. R. WISELIUS then described the city of Manila and its environs, which he had visited in 1875. In spite of the natural riches of the Philippine Islands, the eyes of the traveller met only with poverty and decay wherever he directed them. This was owing to a system of government, compared with which that of their own East India Company was perfection. The position of Manila was an exceedingly unfavourable on, and he was unable to account for its selection, as finer sites might have been found almost everywhere else. He could not agree with those Spaniards who described Manila as one of the finest cities of the world. It was situated on the banks of a pestiferous rivulet, its streets were tortuous and dirty, its houses gloomy and ruinous, its gardens lamentable failures; the traces of an earthquake which occurred in 1863, had not disappeared even then. The inhabitants were fond of music, of cock-fights, and all kinds of gambling.

M. F. J. J. HAVER-DROEZE, who took part in a French military expedition in Algeria, in 1873, gave a general description of that colony.

Professor VETH then communicated some facts respecting the Zeeland traveller, Samuel van de Putte, to whom his attention had been drawn in consequence of a correspondence he had had with Mr. Clements Markham. The archives of the Scientific Society of Zeeland contained some rare manuscripts respecting that traveller, who had visited a large portion of Central and Southern Asia in 1718-45. An important paper on the subject of Van de Putte's travels will be communicated by Professor Veth, at the next meeting.

LYONS GEOGRAPHICAL SOCIETY.

Annual Meeting, 25th December, 1875.

M. DESGRANDS in the chair. The President stated that at the end of the first year of its existence, the Society numbered 383 ordinary members. They had had the advantage of listening at their meetings, to the recitals of Drs. Tirant, Rebatel and Morice, their townsmen, who had travelled in Tunisia and Cochin China, and of MM. P. Soleillet, Aymonier, L. Delaporte, and Ratte, whose explorations had been carried on in the Sahara, in Kambodia, and Tong-king. The accounts of these travellers had been published in their *Bulletin*, the preface to which had been written by M. Christophe, who maintained that French geographical works were equal in value to those of England and Germany, though much remained to be done to popularize geography as a science. Many communications on the geography of commerce had reached them, and a series of free lectures, intended for masters of elementary schools, had been delivered by Professor Ganneval. Scientific geography had likewise been cultivated, and a paper by the Abbé Jolibois, on the "Origin of the Tribes of Mexico," and another by M. Léon de Rosny, on "China and Japan," had led to interesting discussions. One of the Society's medals, value 12*l.*, for an essay on the best means of popularizing geography, had been awarded to M. A. de Longuemar, director of the Poitiers Museum, and another value 20*l.*, to M. Léon Clugnet, for a map exhibiting the silk culture throughout the world. A third prize, for an account of the alps of Grénoble, had not yet been awarded for want of competitors. Their executive committee had considered the best means of popularizing geography. M. Lamy had proposed to make use of the railways for that purpose, by adding to the name of each station the names of the department and of its capital, the height above the sea, number of inhabitants, &c., but the railway authorities had received this idea very coldly. In the Brazils, however, it had actually been adopted by Government. Another proposition, for marking letters passing through the post-office, with the name of the department in which they were posted, had been favourably entertained, but could not be carried out without funds, and these had been refused by the *Conseil-Général*. In conclusion, the President drew attention to the importance of their establishing a library, and said that it was proposed to hold a Provincial Geographical Exhibition, limited to objects having reference to the Valley of the Rhone.

The meeting referred the question of an Exhibition to the executive committee, and decided that a library subscription be opened, every subscriber of at least ten francs to receive the diploma of the Society.

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